TRANSPORTATION ELEMENT

OF THE
LONG BEACH GENERAL PLAN

DECEMBER 1991

PREPARED BY THE DEPARTMENT OF PLANNING AND BUILDING IN
CONJUNCTION WITH
THE DEPARTMENT OF PUBLIC WORKS

THE MAYOR AND CITY COUNCIL

Mayor Ernie Kell

Evan A. Braude, 1st District

Wallace Edgerton, 2nd District

Douglas S. Drummond, 3rd District

Dr. Thomas J. Clark, 4th District

Clarence Smith, 6th District

Ray Grabinski, 7th District

Jeffrey A. Kellog, 8th District Vice Mayor

Warren Harwood, 9th District

THE CITY PLANNING COMMISSION

Elbert Segelhorst, Chairman

Patricia Schauer

Dr. Ebenezor Bush

Nancy Latimer

Nick Monios, Vice Chair

Daniel Cartagena

Anthony Tortorice

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

==========

A. Transportation Task Force Final Report

B. 1989 Air Quality Management Plan

C. Traffic Model Test Run Results

D. Transportation Noise

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

It is the policy of the City of Long Beach to promote strong economic growth and to accept moderate population growth over the next two decades. One of the most obvious negative impacts of such growth is the generation of additional demand for travel. The ability of the City to provide sufficient mobility to accommodate the anticipated growth, while still preserving our high quality of life, is a major challenge facing us through the year 2010. To meet this challenge, the City has undertaken a three-part transportation planning effort:

1. To obtain the best tool for technical analysis.

   The firm of Barton-Aschman Associates was hired to develop a computer model which simulates traffic flow on all major streets in the City. Using the model, City staff can assess traffic impacts resulting from given development proposals and evaluate alternative solutions to mitigate the impacts.

2. To obtain informed citizen input.

   In June, 1989, the Mayor and the City Council appointed 26 citizens to a transportation task force to advise the Planning Commission in the preparation of the Transportation Element of the General Plan. The Task Force held 24 regular meetings and many more subcommittee meetings to prepare their recommendations, which were submitted to the Planning Commission on June 7, 1990.

   At the conclusion of the Task Force's work, a series of community meetings were held at various locations throughout the City. The intent of these meetings was both to inform interested citizens about the Task Force's recommendations and to receive public input in return.

   With few notable exceptions, the community supported the Task Force's recommendations. Therefore, the recommendations contained in the Task Force Final Report form the backbone of this plan.

3. To design a feasible funding program.

   The City Manager appointed a committee of major business and development interests to advise City staff in the preparation of a funding package to build the physical improvements recommended by the citizens committee. This funding package was put in place before the end of 1990.

The Transportation Element is based on the recommendations made by the Transportation Task Force, additional community input in

response to the Task Force Final Report, and technical analysis prepared by staff. The Transportation Element is not a detailed blueprint of the transportation system of the future. Rather, it is a policy document which provides a framework for future transportation construction and management programs. The Element identifies transportation goals and objectives, assesses future needs, evaluates alternative solutions, establishes policies for future improvements, and outlines actions to be implemented. This document is intended to guide the City in developing a comprehensive and balanced transportation system.

Goals and Objectives

Based on the challenge set forth by the Strategic Plan, and various goals from the Land Use Element and the Long Beach Local Coastal Program, the Task Force determined that the goal for the future transportation planning should be:

> **The City of Long Beach is to maintain or improve our current ability to move people and goods to and from activity centers while reinforcing the quality of life in our neighborhoods.**

This goal statement identifies two objectives. First, it is important to establish a transportation system which can provide sufficient mobility for people and goods throughout the City; secondly, it is equally important that this transportation system accommodate traffic in such a manner as to avoid negative impacts upon our neighborhoods. Specifically, the objectives for the future transportation system should be to:

1. **Maintain traffic and transportation service levels at Level of Service (LOS) "D" or at the 1987 LOS where that LOS was worse than "D";**
2. **Accommodate reasonable, balanced growth; and**
3. **Maintain or enhance our quality of life.**

Future Transportation Demand

According to projections of the Southern California Association of Governments (SCAG), by the year 2010 the population in the Los Angeles basin will reach 18.3 million. If everyone maintains his or her same driving habits, an additional 16.8 million vehicle trips would be added to our streets and highways each day. In comparison with the 1984 base year, these additional trips represent an increase of 42%. Locally, by the year 2010, Long Beach is expected to add approximately 95,000 more people, an increase of 24%; 32,000 additional housing units, a net increase of 19.6%; and 91,000 more jobs, an increase of 47%. Based on these growth projections, an additional 460,000 daily trips will use the Long Beach street network by 2010.

Long Beach is fortunate to have in place a relatively effective street network and public transportation system. Except for the very oldest portions of the City, the street pattern consists of a grid of generously designed arterials providing service to collector and local streets within the grid. Long Beach Transit provides access to most parts of the City with a modern, clean bus fleet.

As we look to the future, however, it becomes clear that our local transportation system will become increasingly strained as a result of local and regional growth. It is significant that the computer transportation model indicated severe congestion on City streets even if there were no further growth of housing or jobs in the City of Long Beach. This is because city streets will still be impacted by the continuous growth in the remainder of the region. In fact, if Long Beach had no growth, and no locally-induced congestion on local streets, our relatively trouble-free streets would become even more attractive as alternative routes for much more through traffic.

Evaluation of Alternative Choices

The wide range of alternatives to alleviate traffic congestion fall into two fundamental categories: increasing supply; and reducing demand. On the supply side, we can increase street capacities by building more new streets or widening existing streets to accommodate more cars traveling on them, and we can use existing streets more efficiently to improve the traffic flow. On the demand side, we can reduce vehicular trips in a given time period by increasing the number of riders per vehicle, by spreading out the peak period, and by shortening the travel distance.

To test the applicability of these supply and demand factors to alleviate traffic impacts, the traffic model was used to examine over twenty different alternative scenarios. The test results suggest that:

- The overall goals cannot be achieved by a single solution. We must take a balanced approach. In order to adequately accommodate the projected growth in Long Beach and in this region, the City must make certain capital improvements to the street network, and also implement transportation demand management programs to reduce the dependency on single-occupant vehicles. The target of demand management programs should be a 20% reduction of vehicular peak hour work trips by 2010;

- Long Beach cannot solve transportation problems alone. As over 30% of traffic congestion is caused by through traffic, implementation of a region-wide traffic improvement program such as widening freeways by adding one high-occupancy

vehicle (HOV) lane in each direction is crucial. Without these additional lanes, the computer model runs show significant congestion in Long Beach on virtually all of the major east-west corridors;

- All streets within the City form a network which is a system. Any changes being made to one street, either by increasing or reducing its traffic capacity, will have an impact on the level of traffic on nearby streets. Sometimes, such an effect can even be measured on streets which are located miles away.

- The implementation of the majority of recommended roadway improvements to the current street network will not be needed until 50% of the projected growth is developed in the City. Since that 50% of the anticipated growth is estimated to be reached around the year 2000, it is reasonable to assume that some costly projects or unpopular programs (such as parking removal) can be deferred until after the year 2000.

Recommendations

Although the growth forecast for Long Beach and the surrounding communities is substantial, evaluation of future scenarios indicates that anticipated traffic problems can be managed, and our transportation system can play a supporting role in the City's future growth. This plan seeks to accommodate future traffic demand without affecting residential neighborhoods. This is to be accomplished by a two-fold strategy which: (1) moves traffic to major streets and highways by making physical and operational improvements which will allow them to carry more traffic without bottlenecks; and (2) diverts traffic from local residential streets through traffic mitigation and parking programs developed in cooperation with neighborhood groups.

The plan also seeks to reduce future traffic demand by reducing dependency on the single-occupant automobile during peak hours. New transit strategies, including a doubling of the bus fleet, together with ridesharing programs, staggered work hours, and increased parking charges for employees, are designed to reduce traffic demand by 20 percent.

This policy plan is designed to establish an integrated transportation system to meet these goals and objectives. There are eight interrelated components comprising the policy plan.

1. Regional Mobility Improvement and Coordination

   Long Beach will continue to be impacted by through traffic. Therefore, increasing freeway capacities by adding high occupancy lanes (HOV) on freeways is crucial so that

commuters will not use city streets as alternative routes to congested freeways. Additionally, the City should initiate and support efforts to plan and implement other regional solutions to transportation problems, such as the Alameda Consolidated Transportation Corridor and region-wide Traffic Management Plans.

2. Functional Classification of Streets

Streets should be reclassified based on their functional purpose as well as on their environmental capacity. The designated classification of each street should guide any future street improvements and traffic operational modifications. The revised truck route system is also intended to minimize unnecessary through truck movement on city streets. Figures 22 and 23 illustrate the recommended classification of streets and the truck route system.

3. Roadway Improvement and Better Utilization of City Streets

Certain roadway improvements are necessary to accommodate the physical growth and to attract through traffic to designated streets. These improvement projects include grade separations, roadway widenings, parking restrictions on certain streets, and intersection improvements. Table 16 lists recommended improvement projects. The total preliminary cost for these improvement projects is estimated at $152 million.

4. Transportation Demand Management

The goal is to reduce the peak hour vehicle work trips by 20%. This goal can be achieved by improving transit service and establishing a Transportation Management Association (TMA) at each major activity center (such as the Downtown and the Airport Business Park). The TMA will be responsible to prepare and implement plans that provide incentives to use pedestrian and non-motorized means for personal as well as recreational travel.

5. Transit

In order to attract the non-transit dependent population to use transit service, transit must provide a fast, convenient, safe, clean, and dependable alternative. The improvements may include regional and local express bus service, park-and-ride facilities, shuttle buses, and convenient and user-friendly local services. The objective is to double the present transit ridership by 2010. The estimated capital cost for expansion of transit services is $60 million.

6. Bicycle and Pedestrian Movement

Bicycle and pedestrian movement should also be promoted as viable non-motorized means for personal as well as recreational travel. Pedestrian walkways and the bicycle network should be safe and provide convenient connections with major generators of person trips.

7. Special Activity Centers - Downtown, Port, and Airport

Because the majority of new job opportunities are anticipated at these three activity centers, special attention should be given to them so that adequate circulation systems can move people to and from them.

Downtown Long Beach should be developed as a multi-purpose and people-oriented activity center of regional importance. In order to discourage unnecessary vehicular trips, to provide convenient short-term parking for shoppers, to utilize costly parking facilities more efficiently, a comprehensive downtown parking management plan should be implemented. The estimated cost (including park-and-ride facilities) of this program is $20 million.

In order to reduce truck traffic on the Long Beach Freeway (710), especially during peak hours, the Port and the City should continue to support the implementation of the Alameda Consolidated Transportation Corridor (ACTC) and other port-related road and railway transportation improvement projects. Additionally, the Port of Long Beach should pursue a 24-hour operation.

With regard to the Long Beach Airport, the City should continue to support it as a viable commercial aviation facility to serve community needs while maintaining the quality of life of the adjacent residential neighborhoods. Since the adjacent business park and commercial development will generate additional traffic demand which will exceed street capacities, adequate roadway improvement projects should be implemented before negative traffic impacts occur. Traffic mitigation programs should also be closely monitored to meet the trip reduction goal.

8. Neighborhood Traffic Management Programs and Citizen Participation

To ensure that abutting businesses and adjacent residents will be formally consulted by City staff as individual grade separations, street and intersection improvements, and parking prohibitions are planned, the City is committed to an intensive public input process prior to preliminary design and throughout project design. The City is also

committed to complete a Neighborhood Traffic Mitigation plan before a neighborhood is potentially affected by a nearby transportation improvement program.

Implementation

The implementation strategy of the Transportation Element is to maintain acceptable levels of traffic service (LOS" D" or at the 1987 LOS where that level of service was worse than "D") throughout the City in the face of population and economic growth and change, by expanding the capacity of various streets and intersections, and by reducing the demand for urban travel. Therefore, necessary improvement projects and trip reduction programs are intended to be put in place before negative traffic impacts are realized.

The highest priority is to emphasize State highways over city streets for accommodating a large portion of projected new trip demand. Specifically, Pacific Coast Highway and the 405 Freeway are emphasized over Ocean Boulevard, Seventh Street and Anaheim Street for carrying east-west traffic. Key projects are the construction of the grade separation at the Traffic Circle, and removal of parking during rush hours on Pacific Coast Highway. The next highest priority is to improve access to and from the downtown by the widening of Alamitos Avenue from Ocean Boulevard to Pacific Coast Highway, and the construction of the Iron Triangle grade separation. Tables 18 and 19 present improvement projects and their recommended priorities.

In addition, the City will request the Los Angeles County Transportation Commission, Caltrans and the State Transportation Commission to revise priorities for construction of high occupancy vehicle (HOV) lanes so as to give immediate priority to construction of HOV lanes on the section of the 405 Freeway through Long Beach, and high priority to construction of HOV lanes on the 710 Freeway south of the 405 Freeway.

The Element also recommends twenty-six action programs to implement the policies, as outlined in the Policy Plan. Additionally, notification and review procedures will be established for implementation of major transportation improvement projects, and an official Right-of-Way Plan Line for each arterial will be prepared as the basis for requiring dedication for street purposes.

Since the implementation of the recommended capital improvement projects cannot be supported by a single funding source, a funding package involving a partnership effort of the public and private sectors is essential. The funding proposal is founded on the principle that future improvements to the City's transportation system should be paid for by those who cause the problems and benefit from the improvements. In addition, the

I. INTRODUCTION

I. INTRODUCTION

1.1 PURPOSE

Since 1980, Long Beach has experienced significant growth. Continued growth is expected into the next decade. Inevitably, growth will generate additional demand for travel. Without proper planning and necessary transportation improvements, this increased travel demand, if unmanaged, could result in gridlock on freeways and streets, and jeopardize the tranquility of residential neighborhoods, as evidenced in many sections of the Los Angeles basin.

How Long Beach can provide sufficient mobility to accommodate the anticipated growth, while still preserving its quality of life, will become a challenge facing the City the next decade. To meet this challenge, the City established the following objectives:

1. To obtain the best tool for technical analysis.

   The City contracted with a traffic consulting firm, Barton-Aschman Associates, Inc., to develop a computer simulation model of traffic flow in the City. By using this model, the City can assess traffic impacts resulting from given development proposals. The model can project future transportation demand, and, through examination of different scenarios, provide a basis for the evaluation of alternative solutions. This computer simulation model has been installed in the City and is now operated by City staff.

2. To solicit citizen input.

   In order to include citizen input in the transportation planning process, the Mayor and City Council formed the Transportation Task Force in July of 1989. The Task Force commenced to:

   - Collect, review, and distill citizen concerns regarding transportation issues in Long Beach; and
   - Develop recommendations for inclusion in the Transportation Element of the General Plan.

   The Task Force's recommendations were then presented to the public at a series of nine forums held throughout the City. Results of these meetings were used to finalize the draft Transportation Element.

3. To design a feasible funding program.

   The City Manager appointed a committee of development interests to advise City staff in the preparation of a funding package to build the physical improvements recommended by the citizens committee. This funding package was put in place before the end of 1990.

This Transportation Element is based on the recommendations made by the Transportation Task Force, additional community input in response to the Task Force Final Report, and technical analysis prepared by staff. This Element complies with the State legislative mandate contained in Section 65302(b) of the Government Code as a part of the City's General Plan.

The Transportation Element is intended to guide the City in developing a comprehensive and balanced transportation system. This system must:

- Satisfy transportation needs in response to future growth;
- Integrate with adopted land use and growth policies;
- Use available revenues for the greatest benefit;
- Avoid negative impacts on the environment and quality of life.

The Transportation Element is not a detailed blueprint of the transportation system of the future. Rather, it is a policy document which provides a framework for future transportation construction and management programs. The Element identifies transportation goals and objectives, assesses future needs, evaluates alternative solutions, establishes policies for evaluating priorities, and outlines actions to be implemented.

This Element was developed with the participation of the Department of Public Works, the Transportation Task Force, and the community at large. Thus, it is designed to be used by all members of the community as the policy framework for decision-making on both private development projects and City capital expenditures. This Element should also serve as a guide in the preparation of future transportation management programs, such as the Congestion Management Program.

1.2 GROWTH AND DEVELOPMENT SETTING

After healthy economic and population growth in the 1960's, the City experienced two decades of very limited growth. During this 20-year period, population grew by less than five percent, and the economy suffered a series of setbacks, which were manifested most clearly in the ultimate deterioration and near abandonment of downtown. In the late 70's, the City Council felt that emphasis should be placed on economic growth, especially in the

downtown area. The 1978 General Plan, in implementation of this policy, placed major emphasis upon investment City-wide as well as development and reinvestment in the older parts of the City.

Beginning in 1980, the City underwent a new growth cycle. This growth pattern was different from any previous growth period because the City no longer had large, vacant parcels of land to develop. For the first time, the City faced not only a high growth rate but also increasing density in housing construction. This dramatic change caused new concern within the City because this growth pattern had the potential to change the character of the City completely.

In response to this concern, more than 150 residents and business leaders worked in seven task forces to prepare a strategic plan to outline long-range goals and policies for development of the City through the year 2000. The major issue confronted by the task forces was growth vs. quality of life. As proposed by the Strategic Plan, the policy for the future development should be: "Long Beach accepts the population and economic growth anticipated through the year 2000, and intends to guide that growth to have an overall beneficial impact upon the City's quality of life".

This policy creates managed growth strategies which are reflected in the 1989 Land Use Element. The Land Use Element calls for continued economic growth so that Long Beach will continue to provide opportunities for employment and prosperity for its citizens. At the same time, it calls for moderate population growth. However, the employment growth rate is planned to exceed the population growth rate. As a result, the job/housing ratio is projected to change from 1.17 (1987) to 1.4 (2010) jobs per household. Recognizing the need to locate housing in close proximity to
employment, the Land Use Element promotes high density housing located in the vicinity of activity centers. It also permits housing and mixed use projects along major transit corridors.

The Strategic Plan also acknowledges that an environmentally sound and efficient transportation system is crucial for the City's future prosperity. Reflecting the concern of growth vs. quality of life, the Plan defined the main transportation policy to be: "Long Beach will maintain or improve the current ability to move people and goods to and from development centers while preserving and protecting residential neighborhoods".

Needless to say, the Strategic Plan and the 1989 Land Use Element provide the fundamental framework for the Transportation Element. The traffic demand projection in this document is based upon the growth development policies outlined in the 1989 Land Use Element, and the redevelopment plan for downtown Long Beach.

1.3 CURRENT TRANSPORTATION PLANNING TRENDS

In the past, the solutions to traffic problems were to construct more streets and freeways, and to widen certain roadways to increase capacity. As these solutions were applied to large regions, they enabled hundreds of thousands of urban dwellers to flee to better lifestyles in the suburbs, causing widespread urban sprawl.

Unfortunately, as we now know, such decentralization accompanied by widespread long-distance commuting has created the worst air quality in the nation, and widespread and ever increasing traffic congestion. Thus, the Clean Air Act and recently adopted South Coast Air Quality Management Plan set forth new mandates for transportation management. Trip reduction now has become one of the major challenges in the attempt to attain cleaner air. Both the Regional Mobility Plan and the Growth Management Plan, prepared by the Southern California Association of Governments (SCAG), represent a regional approach to trip reduction efforts.

Preservation of our neighborhoods has also become a major concern in the urban planning process. The well established and tranquil neighborhoods should not be disrupted by large volumes of traffic. The area which is available for new roadway construction or street widening is limited physically within a mature urban center. Equally important is the fact that our financial resources are severely limited. Government no longer has the funds to pursue major transportation projects by itself. Who will pay the enormous improvement cost? This became a dominant issue in the 80's and will continue to be a key issue in the 90's.

Urban transportation planning today is in a state of transition. Changing economic, social and environmental conditions have modified the way transportation systems are provided and managed. As a result of limited resources, emphasis has shifted from construction to management and maintenance. Social equity, environmental protection and energy conservation are being introduced as additional constraints in planning for alternative solutions.

1.4 TRANSPORTATION MODEL

One of the primary tasks in the transportation planning process is to quantify the travel demands generated by alternative land use plans and transportation systems. This planning process relies on proven inter-relationships among land use, socioeconomic characteristics of the population, and the transportation system. By utilizing data on the magnitude and geographic distribution of the existing population, employment, and transportation systems, models can be developed which adequately simulate travel demand.

Recently, the City contracted with a traffic consulting firm, Barton-Aschman Associates Inc., to develop a computer evaluation model of traffic flow in the City. This model is very similar to the models used by the Los Angeles Regional Transportation Study, Caltrans, SCAG, Environmental Management Agency of Orange County, and other agencies throughout the region.

After calibrating the model to current conditions, the traffic impact of existing and forecast land use arrangements and densities can be determined for the existing and new transportation systems. The resulting projections of future travel patterns can provide decision-makers with useful information to aid in targeting future improvements in the transportation system.

The model can also assess traffic impacts resulting from a given development proposal. This aids in prediction of traffic problems on certain streets and in testing the consequences of different construction and management programs. Alternative scenarios and action recommendations in this Transportation Element are based on the technical data provided by the model.

1.5 FORMATION AND FUNCTION OF THE TRANSPORTATION TASK FORCE

In order to obtain citizen's input in the transportation planning process, the Mayor and City Council formed the Transportation Task Force in July of 1989. Its purpose was to make recommendations to the Planing Commission regarding surface transportation as related to the Transportation Element. The Task Force was composed of 23 representatives of various interests throughout the City. One representative was chosen from each City Council District, and others were chosen from various business and community interest groups. The Task Force was divided into sub-committees in order to analyze key issues in four major subject areas: (1) Transportation Demand Management; (2) Transportation System Management; (3) Transit; and (4) Regional Mobility/New Construction.

Beginning in July of 1989, the Transportation Task Force held twenty-four meetings and numerous subcommittee meetings. At these meetings, it identified future transportation needs, and discussed problems and issues relating to potential conflicts between transportation needs and the concerns of the neighborhoods. The Task Force consulted various resources, including testimony from individuals and neighborhood organizations and from transportation experts, and review of previous transportation studies and reports. Many alternative solutions were also carefully reviewed and analyzed, utilizing the computer model.

After carefully examining all the documents, reviewing testimony, and debating the issues, the Task Force concluded its findings and made recommendations to the Planning Commission on June 7,

1990. In order to inform interested citizens about the Task Force report and to receive further public input regarding transportation issues, the Commission directed staff to hold additional community meetings. Nine community meetings were held at various locations throughout the City.

With a few notable exceptions, the community supported the Task Force's recommendations. Therefore, the recommendations contained in the Task Force Final Report are the backbone of this plan. A copy of the Final Report can be found in Appendix A.

II. TRANSPORTATION GOALS

II. TRANSPORTATION GOALS

The formulation of goals and objectives is one of the most fundamental and significant steps in the planning process. Transportation goals are not separate from the general development goals of the City, but rather are an integrated subset which reflect the consideration of environmental, social, and economic factors in making transportation decisions. These goals and objectives express what the desired end result of a city transportation plan should attempt to achieve.

A Vision of Our Future

Before we can determine the appropriate transportation goals, we should have a clear vision of our future. What is the vision of Long Beach's future? Hundreds of citizens spent two years preparing the Long Beach 2000, The Strategic Plan, which sought to define that vision and to prescribe steps to achieve it. That vision, as described in the Long Beach General Plan is "The people of Long Beach have expressed a vision which simultaneously combines small town friendliness and tranquility with big city vitality and economic opportunity".

Based on this vision, the challenge is that the City should manage growth and change in such a manner that the City can be benefitted by employment opportunities and the economic prosperity of a big city, while at the same time our residents can enjoy the tranquility and security of small town living. This Transportation Element is intended to develop a transportation system which can meet this challenge.

Coordination of Goals with the 1989 Land Use Element and Long Beach Local Coastal Program

As guided by the Strategic Plan, the major theme for the 1989 Land Use Element is "managed growth" and "preserving quality of life". Since the Land Use Element is specifically directed toward prescribing the proper long-range use and development of land in the City, this document provides the driving force for formulating the goals for the Transportation Element. The goals and policies which relate to transportation planning are extracted from this document and are listed as follows:

- To improve overall traffic carrying capacity and travel safety, and to reduce traffic conflicts as much as possible;
- To permit sufficient employment and residential densities along transit routes to encourage transit ridership;

- To reduce the total number of strip commercial segments to minimize traffic conflict;
- To increase the amount and quality of moderate and higher density housing along selected corridors;
- To improve the appearance of the corridors in general, recognizing that these streets provide most travellers through our city with their initial, and perhaps lasting, impression of Long Beach.

Incorporated as a part of the General Plan, the Long Beach Local Coastal Program (1980) established specific development policies for the coastal zone. Some of these policies can also have impacts on transportation planning decisions. The policies which are relevant to the roadway system are as follows:

- To preserve the scenic quality of Ocean Blvd/Livingston Dr./2nd Street;
- To increase reliance on public transit;
- To decrease reliance on automobiles;
- To provide adequate parking for beach visitors;
- To increase pedestrian and bicycle access opportunities to the beach;
- To prevent the elimination of parking which would have provided additional through traffic lanes;
- To prevent widening or the addition of traffic lanes on any east/west streets in the Coastal Zone.

The Transportation Element integrates these broader City-wide goals.

Coordination of Goals with Regional Transportation Goals

In order to assess the transportation needs for the rapidly growing region, the Southern California Association of Governments (SCAG) prepared the 1989 Regional Mobility Plan. The goal for this plan is to recapture and retain the transportation mobility levels of 1984 in this region. To achieve this ambitious goal, the plan recommended four important strategies: growth management; demand management; system management; and facility development.

Additionally, in an attempt to improve air quality, the South Coast Air Quality Management District (SCAQMD) adopted the 1989 Air Quality Management Plan (AQMP). The AQMP calls for reducing emissions from automobiles by applying effective measures to resolve traffic congestion. These measures may include ridesharing, vanpooling, and flexible working hours.

The City believes that Long Beach transportation goals should be in harmony with the goals stated in these two documents, and is committed to finding effective solutions to solve traffic problems and to improve air quality.

Transportation Goals and Objectives

Based on the vision of our future and various goals from other plans as stated above, the Transportation Task Force listed ten most important areas of concerns:

1. Efficient use of resources;
2. Equitable distribution of costs and benefits;
3. Environmental considerations;
4. Quality of life/neighborhood preservation;
5. Business/economic development;
6. Community image;
7. Personal mobility;
8. Regional integration;
9. Transit systems (regional and local);
10. Regional mobility.

Recognizing that growth is inevitable, and in reasonable amounts is essential to the City's future, the Task Force determined that the goal for future transportation planning should be:

> **The City of Long Beach is to maintain or improve our current ability to move people and goods to and from activity centers while reinforcing the quality of life in our neighborhoods.**

This goal statement identifies two objectives. First, it is important to establish a transportation system which can provide sufficient mobility for people and goods throughout the City; secondly, it is equally important that this transportation system should be sensitive to the quality of life of the community. Specifically, the objectives for the future transportation system should:

1. **Maintain traffic and transportation service levels at Level Of Service "D" or at the 1987 LOS where that LOS was worse than "D".**
2. **Accommodate reasonable, balanced growth.**
3. **Maintain or enhance our quality of life.**

These goals and objectives set a positive and determined course for developing a comprehensive transportation plan for the City of Long Beach.

III. EXISTING CONDITIONS

III. EXISTING CONDITIONS

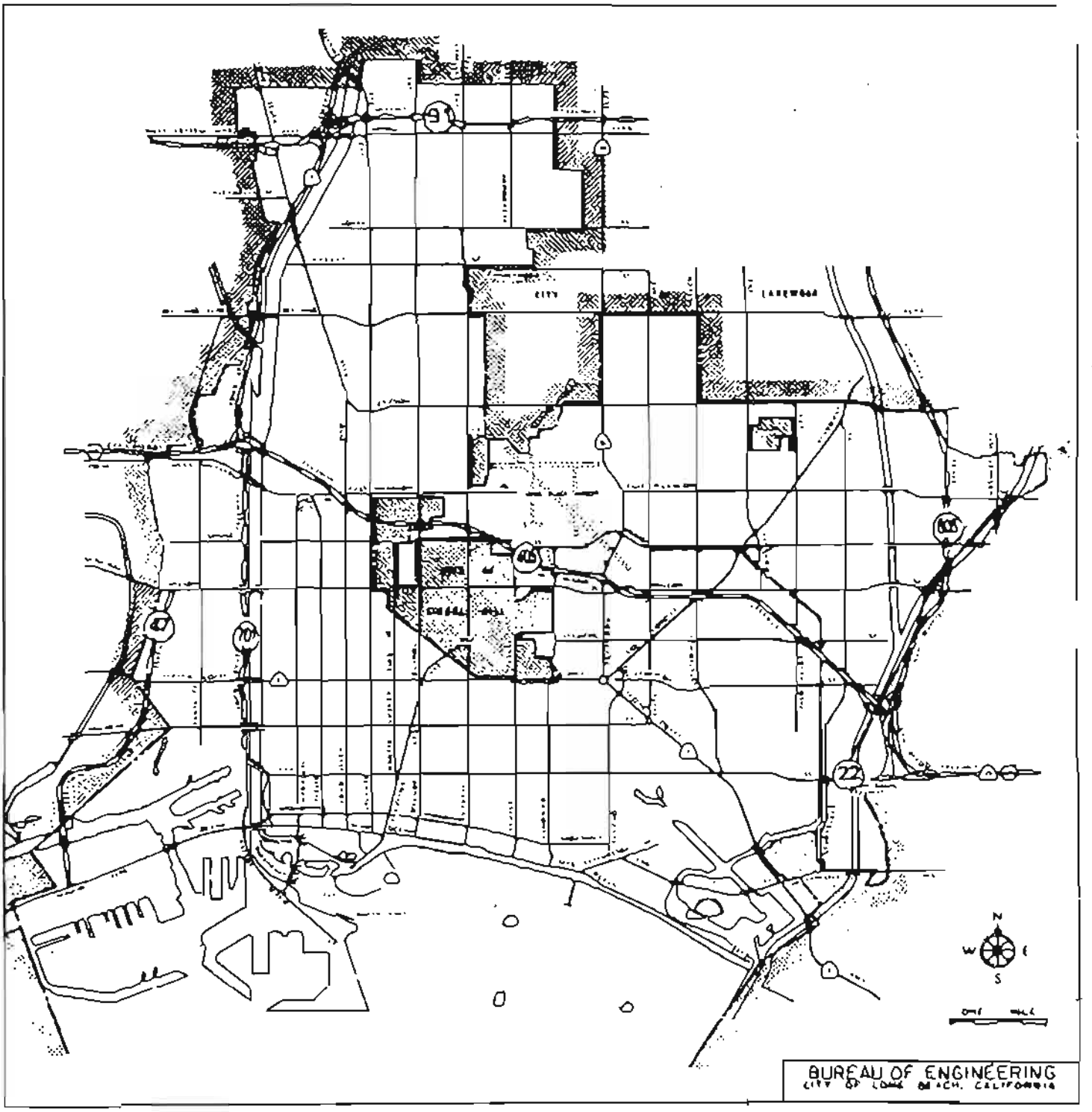
3.1 OVERVIEW OF THE CURRENT TRANSPORTATION SYSTEM

Long Beach is a mature City with well developed street and public transit systems. In comparison with other parts of the region, present mobility and accessibility in Long Beach are relatively good with few problem spots. The following sections discuss the current transportation system serving this city, including the surface roadway network, public transit, bike route system, truck routes, airport and Port of Long Beach.

3.1.1 Surface Roadway Network

The City is directly serviced by five freeways that connect Long Beach with all points in this region. The Artesia (91), San Diego (405) and Garden Grove (22) Freeways provide east-west movements; the Long Beach (710), and San Gabriel River (605) Freeways serve north-south movements (Figure 1). The Terminal Island Freeway (47) connects the Port of Long Beach with the Intermodal Container Transfer Facility. Table 1 lists average daily traffic volumes carried by these freeways. In comparison with 1975 traffic volumes, the San Diego Freeway shows the highest trip increase rate.

The California Department of Transportation (CALTRANS) maintains responsibility for the regional freeway system. In addition to the freeways discussed above, there are two other state routes (State highways) within the City: Pacific Coast Highway (Route 1), and Lakewood Boulevard (Route 19).
The City has a grid pattern street system that is typical of the greater Los Angeles Region. In general, major streets are spaced at one mile intervals with minor streets at the 1/2 mile interval. Closer spacing of arterials occurs in the southern portion of the City below Anaheim Street. The only major deviations from the grid pattern are San Antonio Drive, Los Coyotes Diagonal, Pacific Coast Highway, and Alamitos Avenue. The grid system is quite efficient in its inherent capability to move vehicular traffic, and is conducive to systematic progression of traffic signals in many directions. However, such a system also allows traffic to utilize local neighborhood streets in lieu of congested arterials. This is especially true in areas of the City where arterial streets are inadequate or ill-defined, as in the areas south of Anaheim Street.



Current Street System

CITY OF LONG BEACH, CALIFORNIA

FIGURE 1

TABLE 1

AVERAGE DAILY TRAFFIC (ADT)
FREEWAYS SERVING LONG BEACH BETWEEN 1975-1988

Freeway	Observed Volume (in thousands) 1975 Min.	1975 Max.	1988 Min.	1988 Max.
Artesia (91)	81	159	204	220
Long Beach (710)	68	101	94	153
San Diego (405)	147	175	214	242
San Gabriel River (605)	110	140	161	173
Garden Grove (22)	N/A	53*	50*	65*
Terminal Island (47)	N/A	N/A	17	24

Source: CALTRANS, and Department of Public Works, City of Long Beach.

* This volume only represents the section of the Garden Grove Freeway located within the City limit.

Local traffic patterns have established a much higher density of travel on the east-west roadways than on the north-south. This is due to the fact that north-south roadways terminate at the Ocean at the City's southern boundary, whereas east-west roadways connect to developed areas both east and west of the City. The fact that Downtown, the Port and the Shipyard are located in the southwestern corner of the City with no residential areas to their immediate west leads to a high density of east-west travel concentrated in the "Coastal corridor", between Ocean Boulevard and Pacific Coast Highway. It is not surprising, therefore, that the southern part of Long Beach is the most familiar to most people travelling around Long Beach. This is also the area in which there tends to be greater definition among neighborhoods, greater vitality, more growth, and larger investment and re-investment. Figure 2 presents streets carrying 20,000 or more daily vehicle trips.

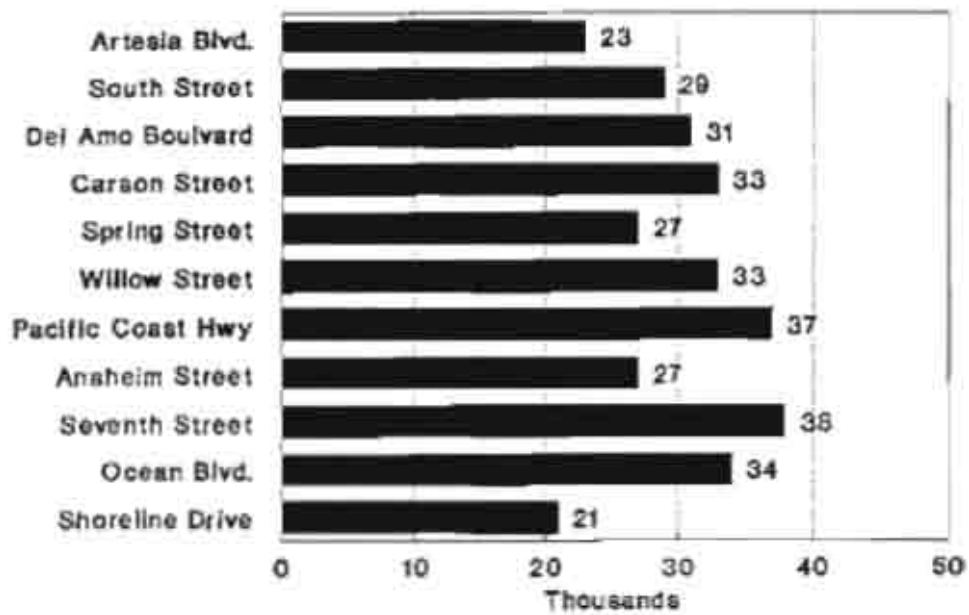
Since the private automobile is still the predominant transportation mode, employment centers draw a significant amount of vehicle trips, especially during the peak commute hours. The peak hour traffic tends to cause traffic congestion while adding noise and accident hazards. According to SCAG, about 45% of the working Long Beach residents hold a job in the City. In 1984, 281,278 workers entered the City each morning from homes in other cities; whereas 269,032 Long Beach residents travelled outside the City to their place of employment. Thus, the City attracted 5% more trips than it produces for other places.

Figures 3 and 4 present work trip commuting patterns to and from the greater Long Beach area. While a majority of the City's residents work in Los Angeles County, a significant number of commutes (43%) are made to Orange County locations. People who work in the City but drive in from other communities live predominantly in Los Angeles County (80%). Average vehicle occupancy for work trips in Long Beach is 1.15 person per vehicle.

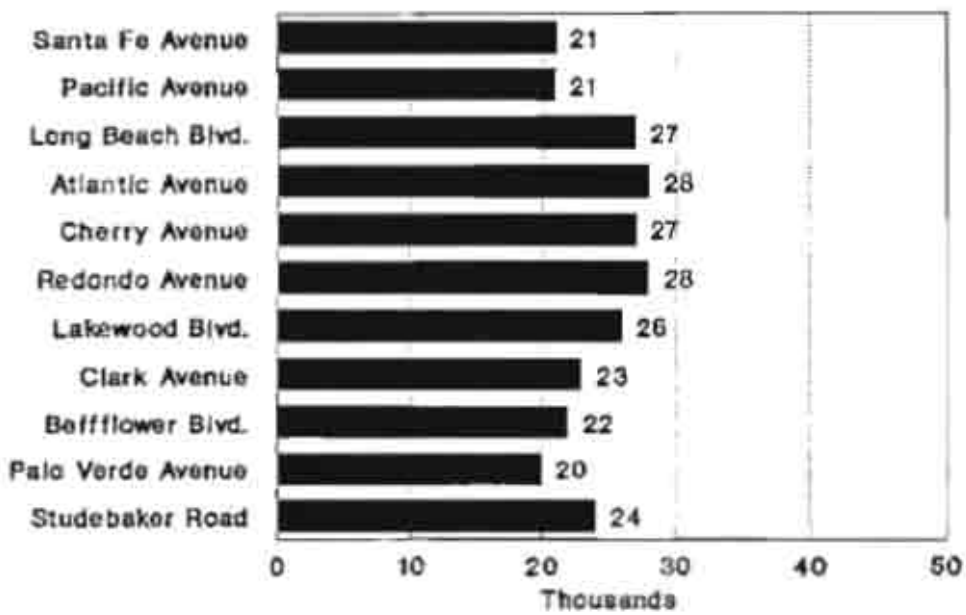
Level of Service (LOS) is the most common method for evaluating traffic impacts. A definition of LOS is given in Table 2. According to 1989 Long Beach Transportation Study Vol I-Traffic (Barton-Aschman Associates, Inc.), almost all sections of the San Diego and Artesia Freeways within the City are currently operated with LOS "E" or "F" during peak hours, which means that these two freeways already carry traffic at or beyond their existing capacities. Figure 5 presents the current Citywide PM peak hour LOS which indicates that most streets in Long Beach are largely free of congestion during the PM peak hours, and only a few spots show LOS "E" or worse.

FIGURE 2
1988 - AVERAGE DAILY VEHICLE TRIPS (ADT)
STREETS CARRYING 20,000 OR MORE ADT

East-West Streets



North-South Streets



SOURCE: DEPARTMENT OF PUBLIC WORKS
CITY OF LONG BEACH

FIGURE 3

NON-RESIDENT WORK TRIPS TO THE GREATER LONG BEACH AREA

(by Regional Statistical Area)

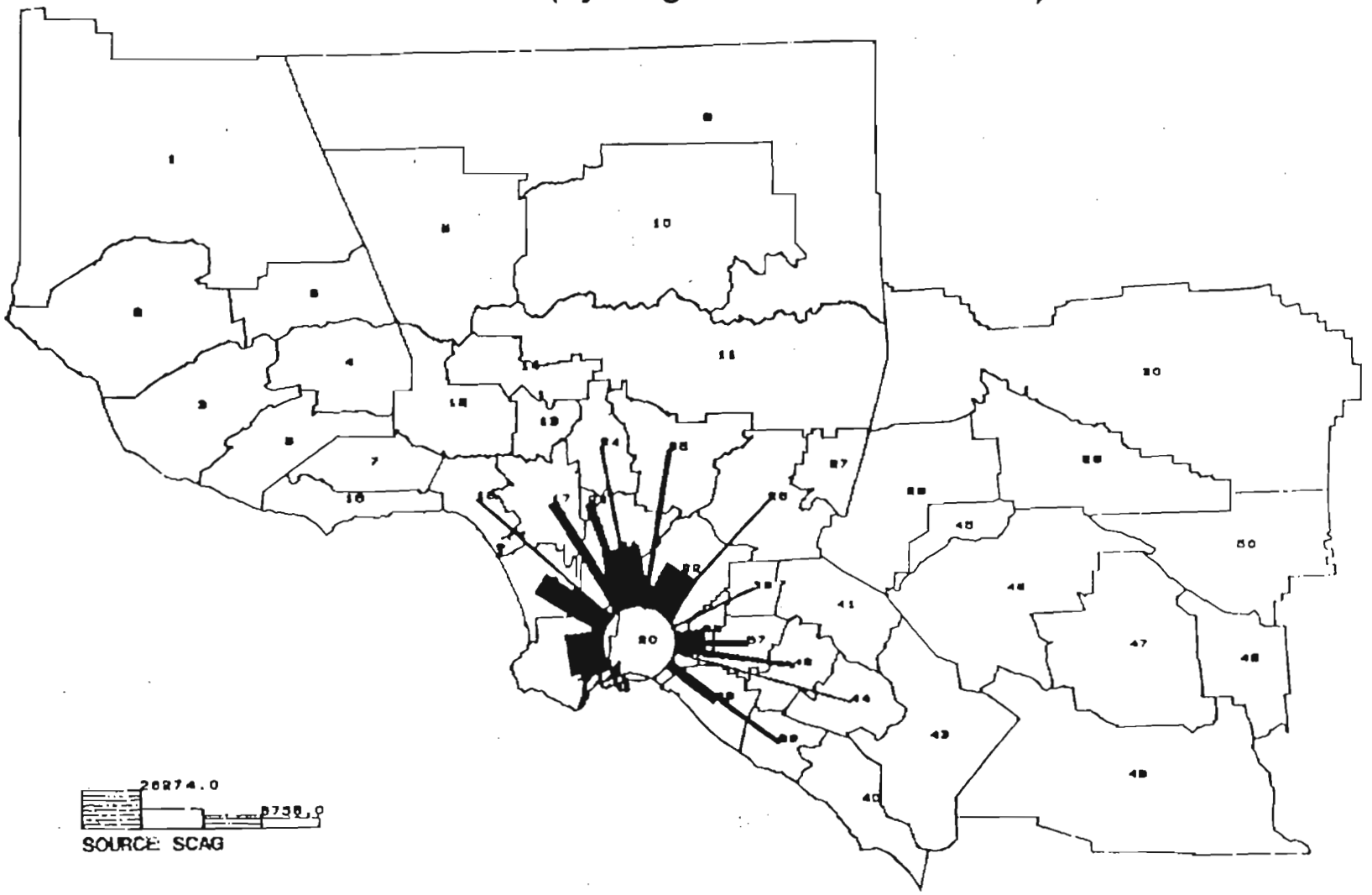
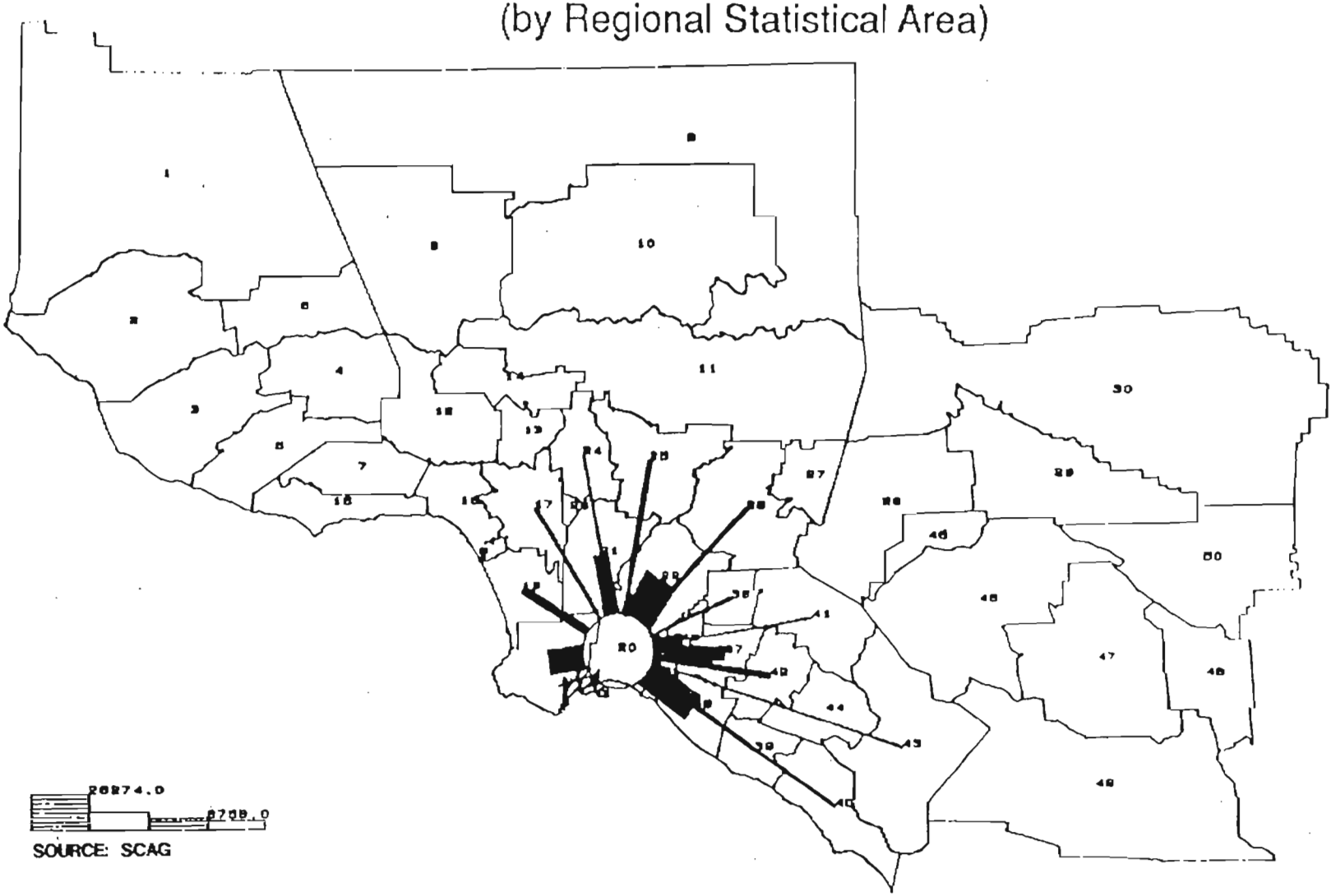


FIGURE 4

WORK TRIPS FROM THE GREATER LONG BEACH AREA TO OTHER PLACES

(by Regional Statistical Area)



SOURCE: SCAG

TABLE 2

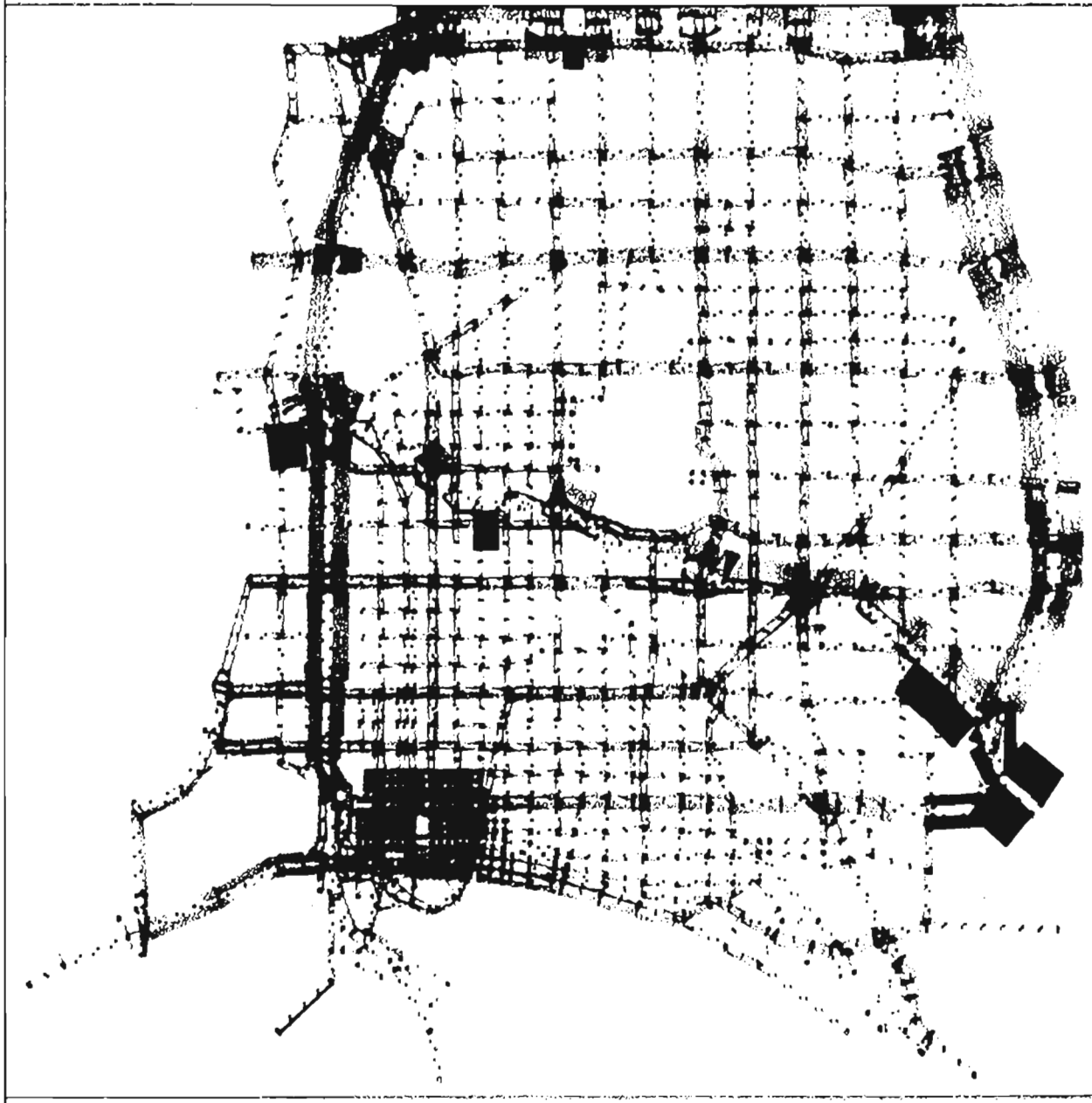
DEFINITION OF LEVEL OF SERVICE (LOS)

Level of Service	Interpretation	Volume/Capacity Ratio
A,B	Uncongested operations; all vehicles clear in a single signal cycle	0.00-070
C	Light congestion; Occasional backups on critical approaches	0.71-0.80
D	Congestion on critical approaches, but intersection functional. Vehicles required to wait through more than one cycle during short peaks. No long-standing lines formed.	0.81-0.90
E	Severe congestion with some long-standing lines on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements.	0.91-1.00
F	Total breakdown with stop-and-go operation.	1.01+

Source: Barton-Aschman Associates, Inc.

BASE YEAR LEVEL OF SERVICE - CITYWIDE

emme/2



LINKS:
TYP=10.60
COL-IND: UL1
THRESHOLD:
LOWER: ======
UPPER: ======

Green
V/C ≤ 0.8

Yellow
0.8 < V/C ≤ 1.1

Red
V/C > 1.1

SCALE: 400
1000
2000
3000
4000
5000

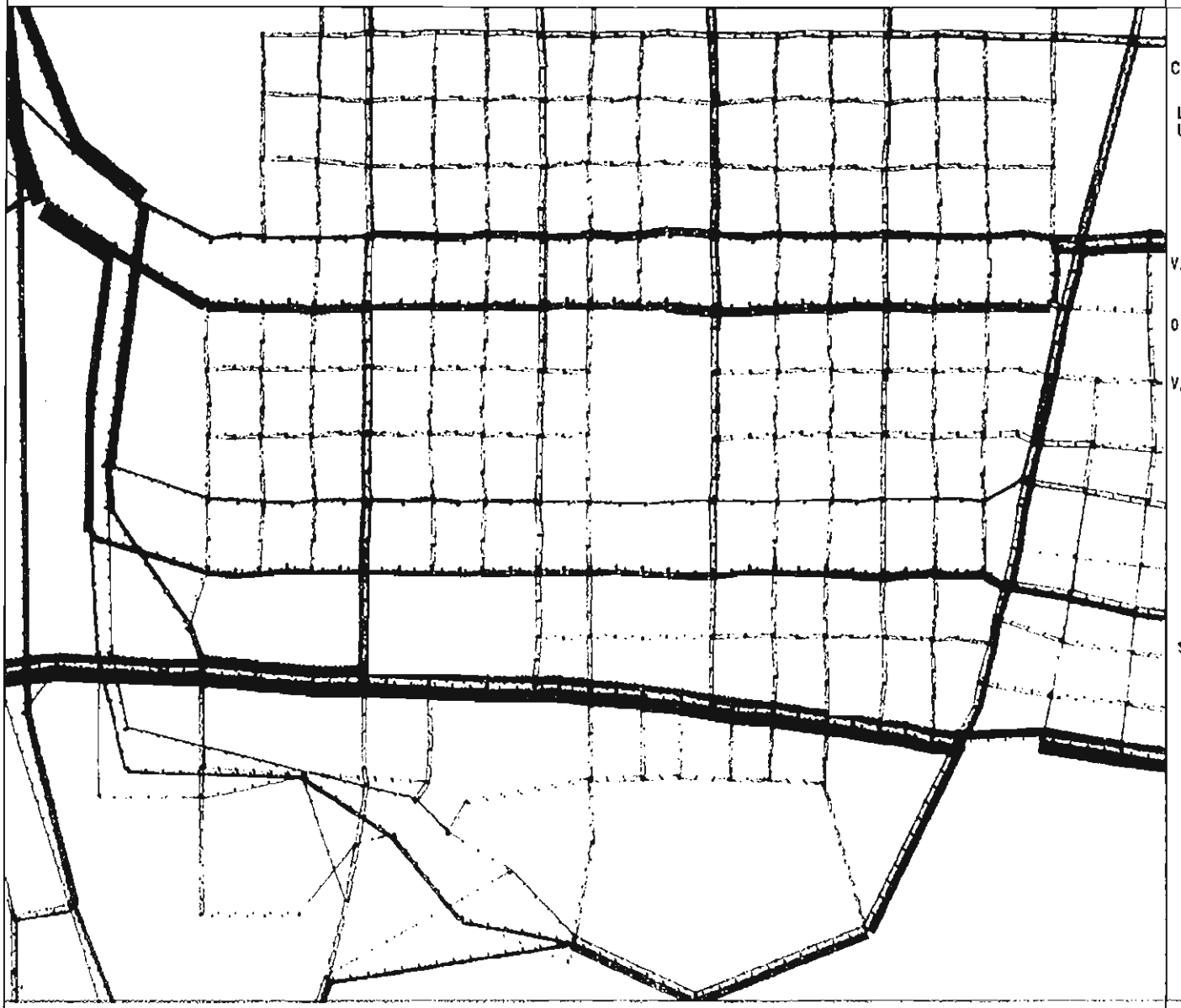
WINDOW:
-1.261/-1.038
11.385/ 8.446

EMME/2 PROJECT: LONG BEACH
SCENARIO 61: 1987 NETWORK/LAND USE - VOL. BY LOS RANGE

DATE: 90 06 22
MODULE: 2.13
LBDPW.....tw1

FIGURE 5a

BASE YEAR LEVEL OF SERVICE - DOWNTOWN



emme/2

LINKS:
TYP=10.60
COL-IND: UL1
THRESHOLD:
LOWER: ******
UPPER: ******

Green
V/C < 0.9

Yellow
0.9 < V/C < 1.1

Red
V/C > 1.1

SCALE: 200
500
1000
1500
2000
2500

WINDOW:
1.9475/ .6028
3.5962/1.8393

EMME/2 PROJECT: LONG BEACH
SCENARIO 61: 1987 NETWORK/LAND USE - VOL. BY LOS RANGE

DATE: 90 06 22
MODULE: 2.13
LBDPW.....tw(

FIGURE 5b

3.1.2 Public Transit

Existing bus service in Long Beach is primarily supplied by Long Beach Transit. Southern California Rapid Transit, Orange County Transit, and Torrance Transit provide limited services between Long Beach and other cities. Additionally, a variety of paratransit and dial-a-ride services provide transportation for senior citizens and handicapped persons.

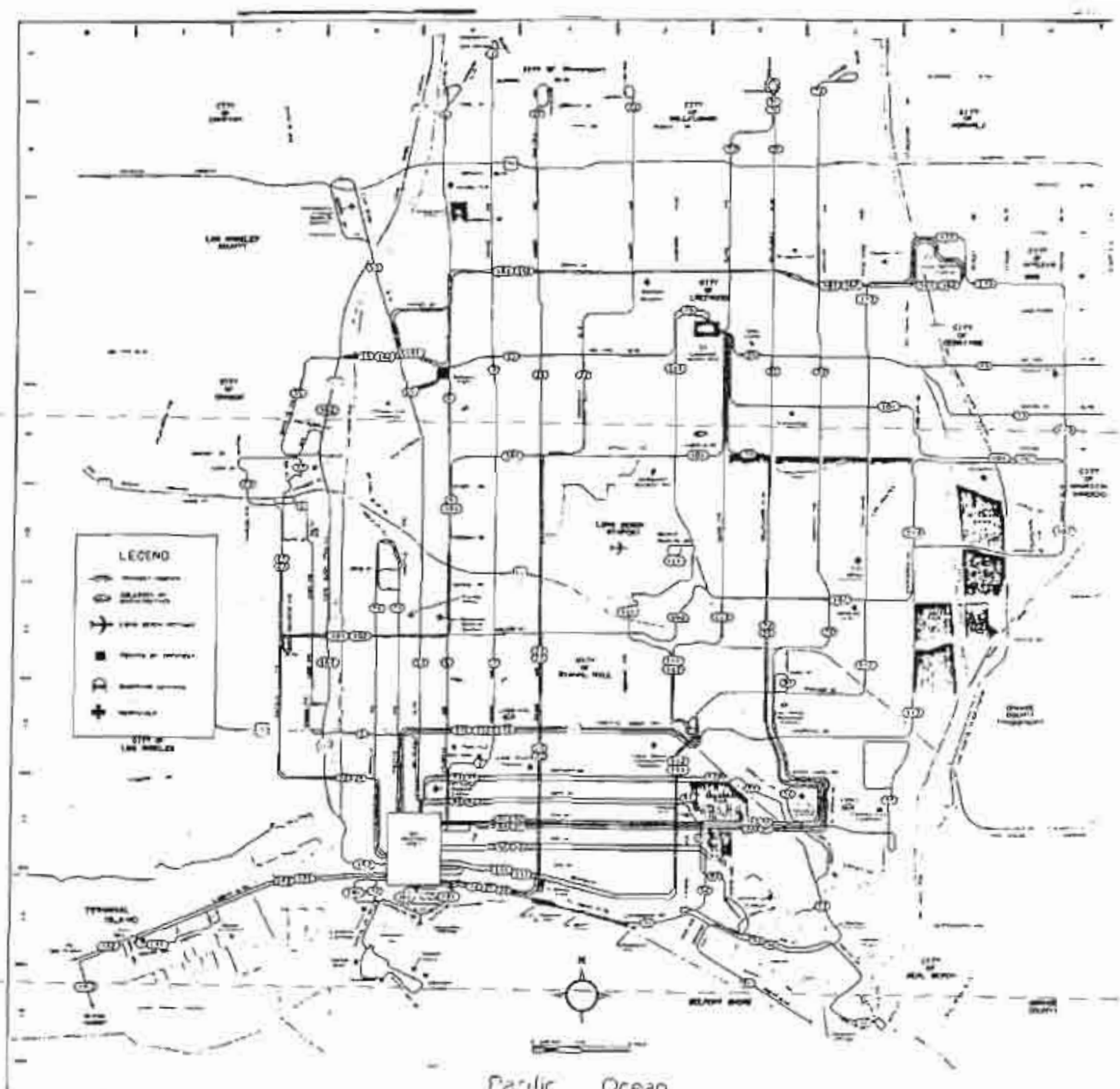
Long Beach Transit

Long Beach Transit (LBT) is the principal provider of public transportation in the City. LBT, a non-profit public corporation owned by the City, was established in 1963. Its service area not only covers the entire city, but also extends into portions of Signal Hill, Cerritos, Lakewood, San Pedro, Bellflower, Paramount, Compton, Carson, Los Angeles, Hawaiian Gardens, and Seal Beach. Population within the Long Beach Transit service area exceeds 600,000. The pattern of Long Beach Transit fixed route services is illustrated in Figure 6.

Presently, Long Beach Transit operates approximately 6.3 million miles of regular fixed route service annually, and carries over 21 million riders. Peak period service requires 136 GMC diesel powered buses out of a total fleet of 166 buses. The current ridership is more than double that of 1963. This ridership increase is at a rate higher than the population increase in Long Beach over the same period. Figure 7 shows the ridership trend over the past decade. According to the current survey, Routes 6 (Atlantic) and 140 (Naval Station/San Pedro) carry the highest passenger- per-vehicle service hour (Table 3).

Citywide, the transit system carries an estimated 4.4% of work trips. The recent survey shows that approximately 8.4% of downtown work trips are by transit. The profile of transit ridership is summarized in Table 4.

Since 1985, the City has added a tram service connecting the downtown and Shoreline Village. The Tram runs on the Promenade from the Long Beach Plaza Shopping Center to the southern end of the Promenade near Shoreline Village. The tram is free of charge and carries about a half million people each year. With the growing number of office development and hotels in the downtown area, the tram provides an important shuttle service between downtown and the shoreline recreation facilities.



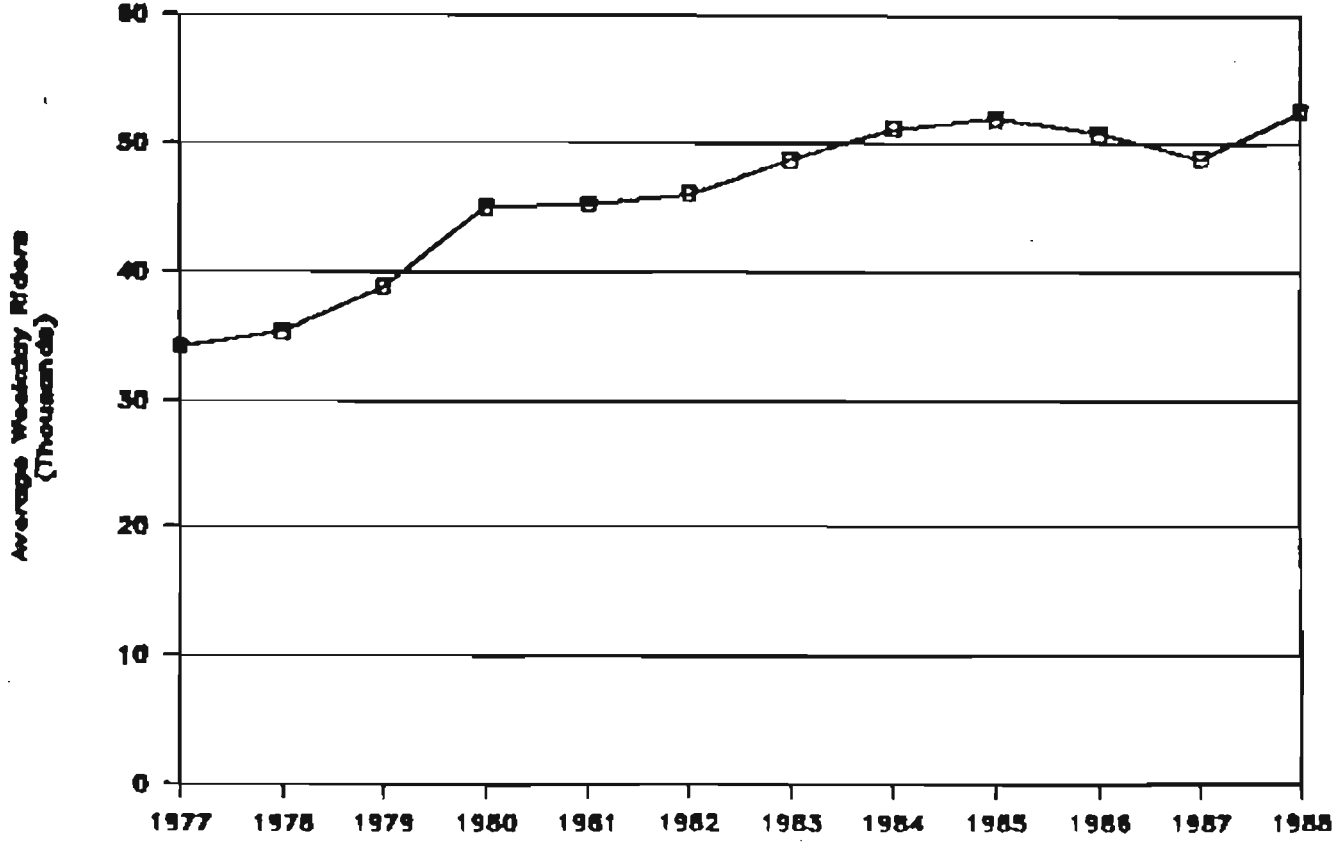
LONG BEACH TRANSIT ROUTES

FIGURE 6

FIGURE 7

Long Beach Transit

RIDERSHIP TREND

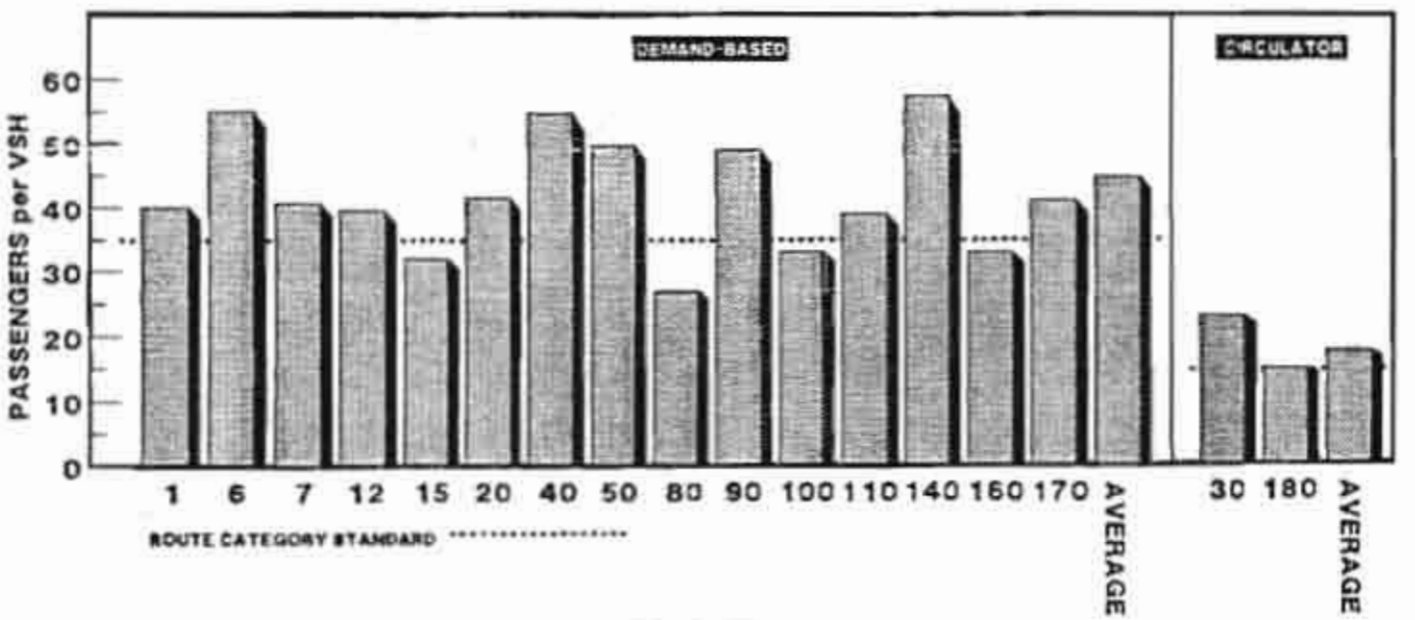


SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

TABLE 3
FIXED ROUTE
PERFORMANCE MONITORING REPORT
FOR FISCAL YEAR 1989 (JULY 1, 1988 - JUNE 30, 1989)

PASSENGERS PER VEHICLE SERVICE HOUR (VSH)

LINE	TOTAL PASSENGERS	VEHICLE SERVICE HOURS	PASSENGERS PER VSH	% CHANGE LAST YEAR
1	599,361	14,969	40.0	-1.3%
6	1,890,459	34,318	55.1	+7.4%
7	846,410	20,854	40.6	+11.0%
12	687,440	17,432	39.4	+17.9%
15	455,429	14,343	31.8	+14.6%
20	2,174,028	52,463	41.4	+14.4%
30	111,709	4,871	22.9	-1.5%
40	2,600,536	47,546	54.7	+6.0%
50	2,602,524	52,486	49.6	+9.8%
80	174,009	6,503	26.8	-1.3%
90	2,618,716	53,528	48.9	+3.2%
100	1,063,383	32,332	32.9	+6.6%
110	1,553,184	40,049	38.8	+9.4%
140	1,389,917	24,212	57.4	+25.4%
160	564,989	17,231	32.8	+12.9%
170	1,989,279	48,548	41.0	+8.8%
180	161,117	10,901	14.8	+3.4%
TOTAL	21,482,490	492,586	43.6	+9.7%



LONG BEACH TRANSIT

TABLE 4

BASE YEAR (1987) DAILY TRANSIT RIDERSHIP

AREA/TRIP PURPOSE	PERSON TRIPS	TRANSIT TRIPS	PERCENT TRANSIT
GREATER LONG BEACH:	(Includes Lakewood & Signal Hill)		
HOME-BASED WORK	487,614	21,199	4.4%
HOME-BASED OTHER	847,484	21,442	2.5%
NON-HOME-BASED	467,059	7,204	1.5%
ALL PURPOSES	1,793,157	49,845	2.8%
LONG BEACH CBD:			
HOME-BASED WORK	32,564	2,741	8.4%
HOME-BASED OTHER	61,642	4,396	7.1%
NON-HOME-BASED	46,437	1,536	3.3%
ALL PURPOSES	140,643	8,673	6.2%

SOURCE: BARTON-ASCHMAN ASSOCIATES, INC

Dial-A-Lift

In addition to scheduled bus service, Long Beach Transit is also responsible for the operation of Long Beach Dial-A-Lift. This is a subscription transportation service available to the residents of Long Beach who are physically handicapped. Long Beach Dial-A-Lift is actually operated by a private company under contract to Long Beach Transit. Each year, 100,000 riders benefit from this service using 20 customized, wheelchair-lift equipped vans.

Transit Revenue and Expense

Long Beach Transit obtains operating revenues from a variety of sources. About 30% of the operating budget comes from the farebox, advertising, and other locally generated sources. All Federal and State money, which makes up about 40% of the operating budget, is allocated by the Los Angeles County Transportation Commission (LACTC). The LACTC also allocates Proposition A funds. Proposition A funds are generated from the extra half cent sales tax in L.A. County and are divided into three groups: part goes for rail construction; part is returned to the cities to be used for public transit purposes; and part is discretionary by the Commission and is now used to subsidize the bus operators in L.A. County. Proposition A Funds received by Long Beach Transit make up the remainder of the operating budget.

Long Beach Transit's operating budget this year is approximately $26 million. Approximately $24.5 million is for the operation of fixed route services; $1.4 million is for the operation of Long Beach Dial-A Lift; and $150,000 is to operate the Promenade Tram.

Long Beach Transit is recognized as one of the most efficient bus companies in L.A. County. It provides service at an average cost per hour 25% below the average cost per hour for similar service in the County. In 1989, Long Beach Transit was presented an award for being the best transit operation in the North American region (both American and Canadian transit firms were involved in the competition).

Metro Blue Line (Light Rail)

In November 1980, the voters of Los Angeles County passed Proposition A, a Los Angeles County Transportation Commission (LACTC) - sponsored measure which raised the sales tax in the county by a half-cent to improve public transportation. A key feature of the Proposition guarantees 35 percent of the total tax revenues for construction and operation of a rail transit system serving the entire county. The ballot measure included a map of 13 transportation corridors where rail transit lines were to be built. The Long Beach-Los Angeles light rail transit project (also known as the Metro Blue Line) was selected as the first project.

The total length of this line is 21 miles, and includes 22 stations (See figure 8). Eight of these stations are located in

Long Beach. The first station entering the City is at Del Amo Boulevard, which includes a regional park-and-ride lot. Wardlow Road and Willow Street are the other two stations with neighborhood park-and-ride facilities.

The Blue Line route enters Long Beach Boulevard at Willow Street from its own right-of-way and travels south on Long Beach Boulevard at grade, in reserved lanes, next to planted medians. It then travels west on 1st Street, north on Pacific Avenue, east along 8th Street then back to Long Beach Boulevard.

The total travel time between Long Beach and Los Angeles is approximately 52 minutes. Trains operate from early morning to late in the evening. The frequency during peak hours is every 10 minutes, 15 minutes during off-peak hours, and every 20 minutes during night hours. On surface streets, the average speed for the light rail is the same as the posted street speeds. However, on its own exclusive right-of-way, the speed could be up to 55 miles per hour.

Operation of the Metro Blue Line began on July 14, 1990. The Long Beach - Los Angeles Blue Line ties into the Metro Rail Subway System at 7th and Flower Streets and with a "Green Line" now being built to link south-eastern L.A. County with LAX. Ridership is projected to be 35,000 per day by 1991, and 54,000 per day by 2000.

Other Transit Services

Several local RTD lines connect Long Beach with the adjacent communities of Compton, Wilmington, Paramount, and Seal Beach, and with points beyond.

Torrance Transit System (TTS) provides service to Long Beach on Route 3. This route connects the City of Torrance and downtown Long Beach via Pacific Coast Highway, Pacific Avenue, Broadway and First Street.

Transit service operated by Orange County Transit District (OCTD) extends into the eastern portion of the City (Routes 50 & 60) and downtown Long Beach (Route 1). Route 50 connects Long Beach to the City of Orange, and Route 60 provides connection to Santa Ana. Route 1 travels on Pacific Coast Highway and provides connections to coastal communities between Long Beach and San Juan Capistrano.

METRO BLUE LINE
Rail Stations

1. 7TH STREET/ METRO CENTER (opens 1991)
   7th St. and Flower Street
2. PICO
   Pico Blvd. and Flower Street
3. GRAND
   Grand Ave. and Washington Blvd
4. SAN PEDRO
   San Pedro St. and Washington Blvd.
5. WASHINGTON
   Washington Blvd. and Long Beach Ave.
6. VERNON
   Vernon Ave. and Long Beach Ave.
7. SLAUSON
   Slauson and Long Beach avenues
8. FLORENCE
   Florence and Graham Ave.
9. FIRESTONE
   Firestone Blvd. and Graham Ave.
10. 103RD STREET
    103rd St. and Graham Ave.
11. IMPERIAL
    Imperial Hwy. and Wilmington Ave.
12. COMPTON
    Compton Blvd. and Willowbrook Ave.
13. ARTESIA
    Artesia Blvd., one block west of Alameda St.
14. DEL AMO
    Del Amo Blvd. and Santa Fe Ave.
15. WARDLOW
    Wardlow Rd. and Pacific Ave.
16. WILLOW
    Willow St. and Long Beach Blvd.
17. PACIFIC
    Pacific Coast Hwy. and Long Beach Blvd.
18. ANAHEIM
    Anaheim St. and Long Beach Blvd.
19. 5TH STREET (opens Sept. 1990)
    5th St. and Long Beach Blvd.
20. 1ST STREET (opens Sept. 1990)
    1st St. and Long Beach Blvd.
21. TRANSIT MALL (opens Sept. 1990)
    1st St. and Pine Ave.
22. PACIFIC (opens Sept. 1990)
    5th St. and Pacific Ave.

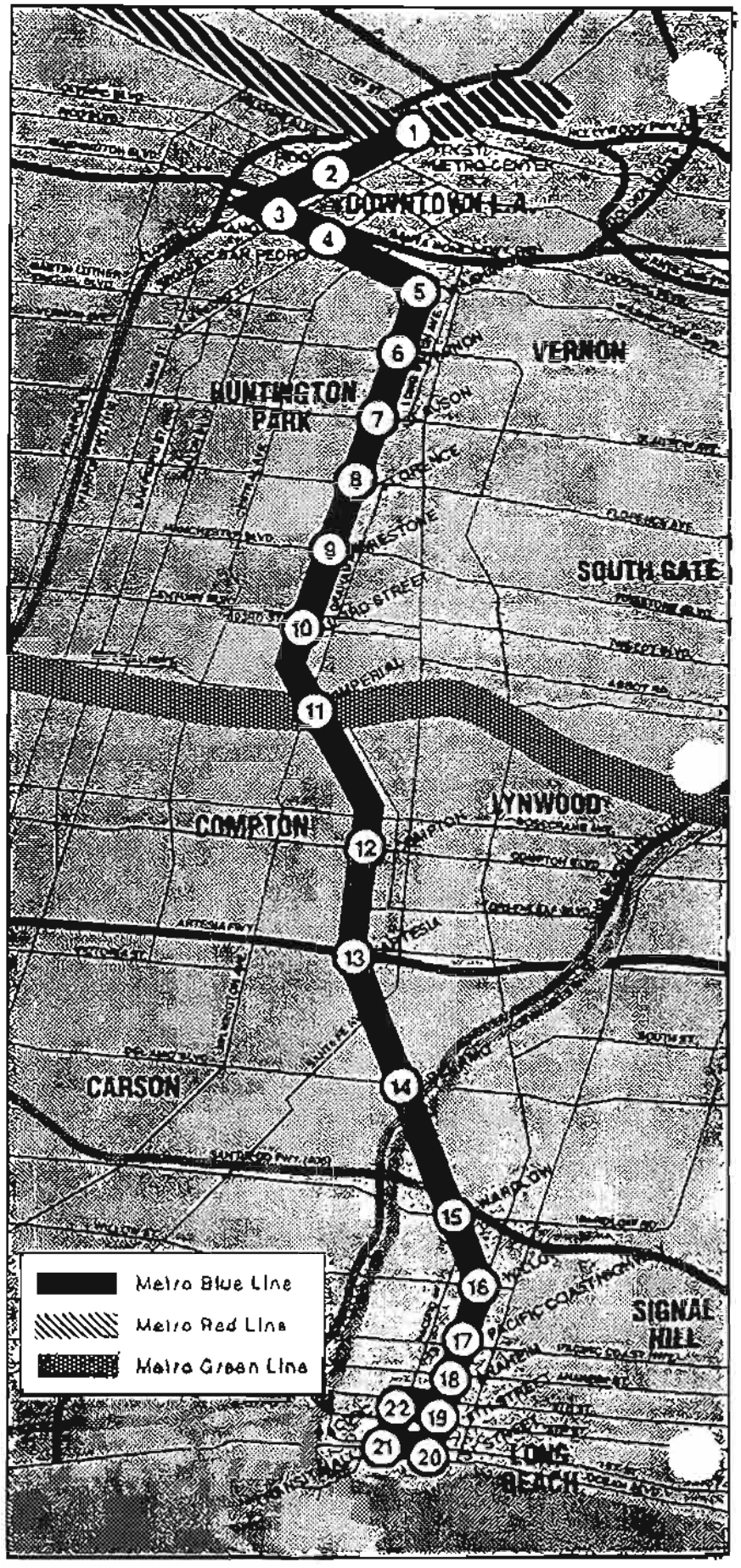


FIGURE 8

Transit Mall

As a part of the downtown revitalization plan, Long Beach Transit received a large grant from the Urban Mass Transportation Administration in 1979. The grant was for a multi-modal transportation project which was the first of its kind to gain federal funding under the Urban Initiatives Program of the Carter administration. The Transit Mall, located on First Street between Long Beach Boulevard and Pacific Avenue, is devoted exclusively to public transit and is off-limits to automobiles. Bus riders traveling to any point within Long Beach, and to virtually every corner of Los Angeles and Orange Counties, can conveniently make this connection in one central location. The Transit Mall serves not only Long Beach Transit, but the Southern California Rapid Transit District (bus and rail), Orange County Transit District, and Torrance Transit buses as well.

Due to the construction of the light rail system, the transit mall was widened and provided with new bus shelters, sidewalks, and bus and rail information kiosks. The passenger shelters contain computerized information monitors providing up-to-the-minute bus schedule information. A rail station was built at First Street and Pacific Avenue to provide a very convenient transfer connection between light rail system and bus services, and to provide services to the very large office center in that area.

3.1.3 Bicycle Route System

A Citywide bike route system recommended by the Long Beach Bicycle Master Plan identifies three categories of bike routes. Class I (bike paths) provides a completely separate right of way for bicycles. Class II (bike lanes) is a striped lane on a street for the exclusive use of bicycles one-way travel on a street or highway. Class III is a roadway that is designated by signage or it identifies a route which is somehow preferable to immediately adjacent streets. The purpose of the recommended system is to provide facilities that can be used as an alternative to the private automobile for many trips.

An extensive field review was conducted of all existing bikeways in Long Beach. There are approximately 63 miles of Class I, II and III bikeways. The breakdown of the bikeways by class includes approximately 29 miles of Class I, 19 miles of Class II and 15 miles of Class III. Figure 9 shows the Existing Bike Routes. Few new completely separated bicycle paths are proposed in Long Beach due to the built out nature of the City. Most Class I paths are along the Los Angeles and San Gabriel Rivers.

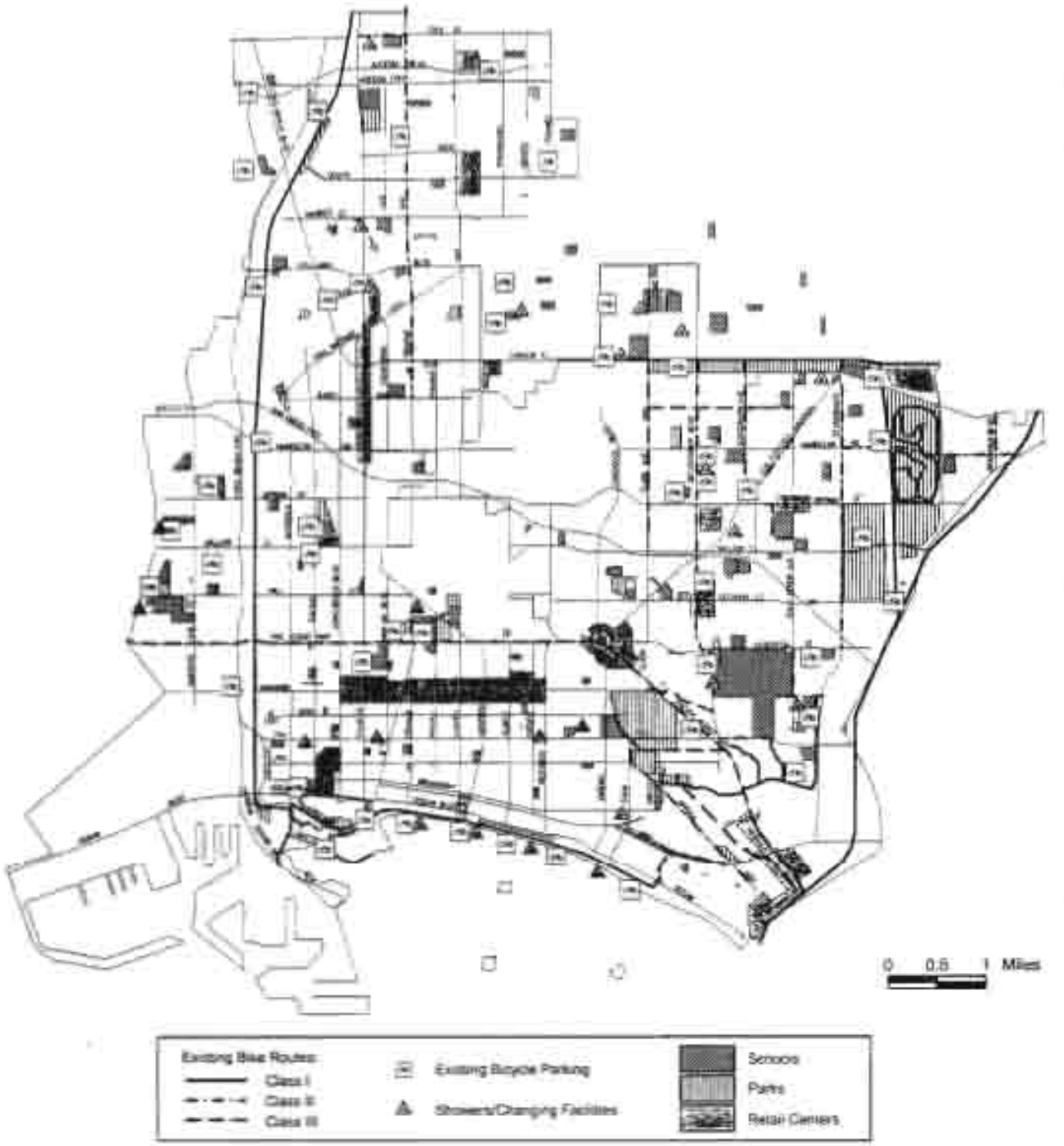


Figure 9

EXISTING BICYCLE ROUTE SYSTEM

City Of Long Beach, California

3.1.4 Truck Route System

Through truck movements in the City are regulated by the State Vehicle Code and local ordinance establishing truck routes. With the adoption of the 1980 Transportation Element, a truck route system was designated for the City (Fig. 10). Subsequently, a number of amendments to the truck route system were adopted.

Truck routes are needed to provide necessary through truck movement within the City. Too few trucks routes can result in the unrestricted use of inappropriate streets. Such an unregulated usage could disturb the tranquility of residential neighborhoods and hamper the use of these roadways by causing congestion and roadway deterioration. Inappropriate truck routes could also impact the adjacent residential uses by causing illegal truck parking and noise problems.

From a street function point of view, major arterials are designed to carry through traffic movements within a city. However, not every major arterial is suitable for a truck route, especially where the residential use is encouraged to be the predominate use fronting that street. On the other hand, collector streets or local streets are not appropriate as truck routes since through traffic should not be permitted on these streets.

Therefore, designation of a truck route system should not only take into account traffic flow, but also should assess the environmental factors of the adjacent land uses in order to protect residential neighborhoods from unneeded truck traffic.

One of the important planning policies stated in the 1989 Land Use Element is to promote high density residential use along certain major corridors. As a result, it is necessary to carefully re-evaluate the truck route system to reflect the recent changes in the Land Use Plan in order to ensure the proposed system will not create any conflict with the land use policies. Recommended changes are discussed in Chapter 5 of this Element.

FIGURE 10

1980
TRUCK ROUTE SYSTEM

3.1.5 Air Transportation System

The air transportation system handles two types of aviation activity: commercial aviation (including scheduled air carriers, commuter/air taxi, charter, air freight/cargo); and general aviation (all other types except military). Within this region, demands for air carrier services are currently met by Long Beach Airport, Los Angeles International Airport (LAX), John Wayne Airport, Burbank Airport, and Ontario Airport. General aviation needs are met at a number of small and large airports, including Long Beach.

In 1987, there were approximately 7 million air operations in the region, making it one of the busiest air traffic areas in the world. The impending lack of adequate commercial airport capacity will become an issue during the 20-year planning period of this Element. Due to the population growth and difficulties imposed by certain constraints (primarily noise impacts and ground access constraints) at existing airports, this capacity shortfall will become significant. Figure 11 presents the projected level of service among the major five air carrier airports. Unless the inability to develop a new site for a regional airport is overcome, pressure will mount, resulting in increased service at existing facilities.

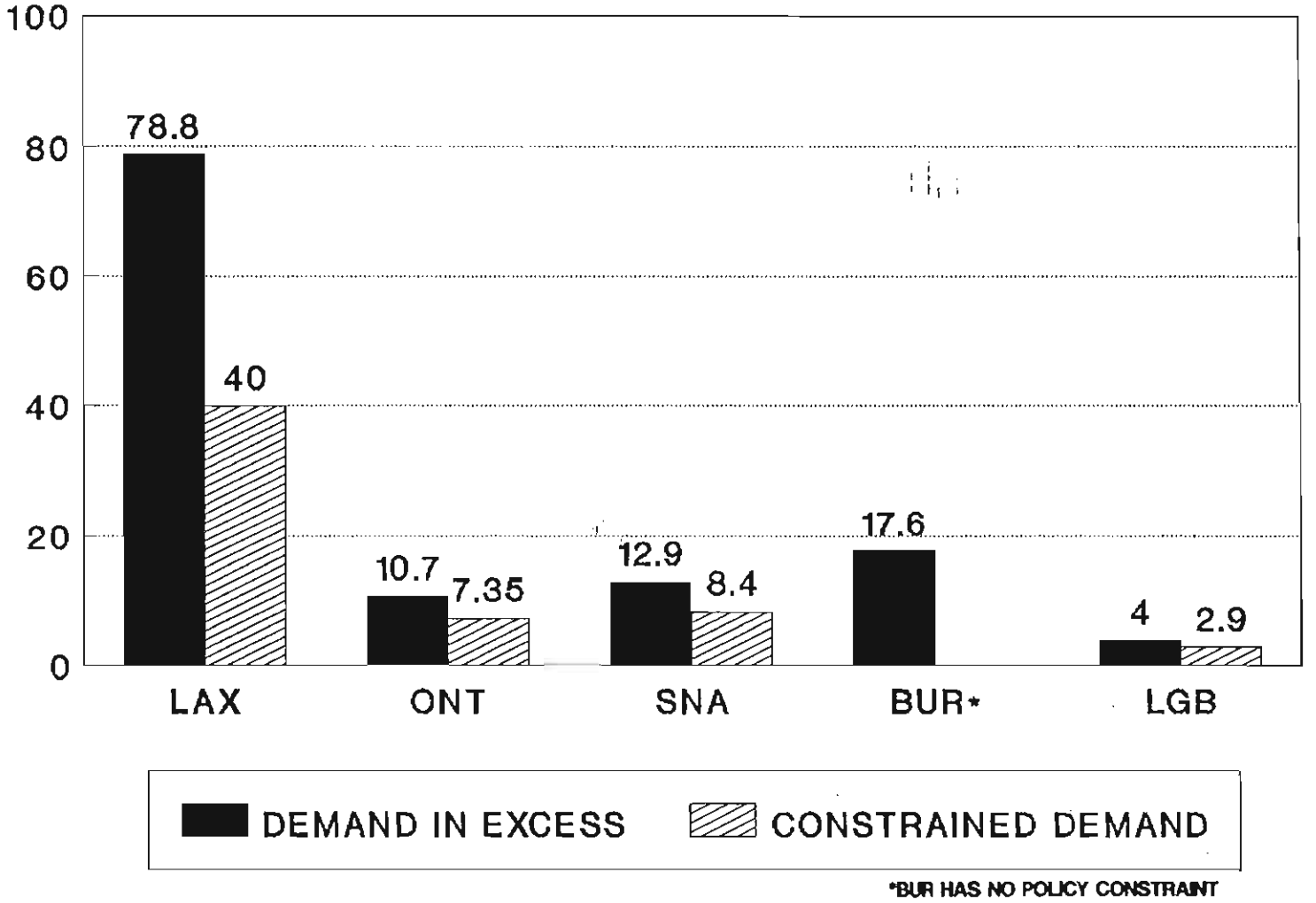
Assessment of regional air carrier needs has been the subject of a number of SCAG studies. Presently, SCAG is in the process of conducting an update of the Aviation System Study and completing an Airport Impact Mitigation and Management Study. These studies are aimed at providing needed capacity in this region. One option often mentioned for a new regional airport is a site in San Pedro Bay off Long Beach.

Long Beach Airport

The Long Beach Airport is one of the City's major activity centers. The airport had its origins in 1923 when the City Council set aside 150 acres of property for development as an airport. During the late 1940's and 1950's, major land acquisitions occurred and the airport grew to the current size, approximately 1,166 acres. Due to the physical constraints and concern for quality of life in the adjacent neighborhoods, it is highly unlikely the airport would increase in size by acquiring additional land in the future.
In 1989, the annual passengers carried reached 1.4 million, which is more than double that of a decade ago.

FIGURE 11

URBAN AREA AIR CARRIER AIRPORTS
YEAR 2010 PROJECTED LEVEL OF SERVICE



SOURCE: SCAG, 1989 REGIONAL MOBILITY PALN

Additionally, an extensive commuter network is available through United Express. There are 700 private aircraft based at the airport, and about 480,000 annual aircraft operations.

General aviation at the Airport has experienced changes due to fluctuations in demand. While general aviation has always been a major component in the airport's activity spectrum, it has gone from a high of 679,000 annual operation (99% of the airport's total operation) in 1979, down to less than 400,000 in 1985, and in 1988 back to about 411,000 operations (94% of the airport's total operation). Based general aviation aircraft has gone from a high of 1,150 in 1981 to an estimated 700 aircraft today.

The 43 year-old-terminal building is not adequate to handle today's passenger loads, especially in the security screening pre-boarding lounge areas. Recently, a minor improvement was constructed to provide better accessibility for the handicapped, to improve mobility in the passenger screening process, and to improve ticketing and check-in processing of airport users. However, the current terminal facilities are still inadequate to meet today's demand. No improvement plan can be proposed until a new airport master plan is adopted. That process is currently being delayed by pending legal actions.

As is characteristic of most commercial airports in this country, Long Beach Airport operations are entirely funded with user fees. Locally-generated revenues of approximately $12.7 million per year are derived from sources such as landing fees, ground leases, and terminal rentals. The Federal Aviation Administration (FAA) distributes aviation taxes to all of the nation's airports through an allocation formula based upon annual enplanements. These funds (Long Beach allocation: $2 + million /year) are available for airport capital improvements with a Federal funding ratio of up to 90%. In addition, State funds are available, on a 90% State/10% local basis, for eligible projects under the California Aid to Airports Program.

Ground Transportation

Located one half mile north of the San Diego Freeway, Long Beach Airport enjoys convenient freeway access. The Airport Terminal is accessed from westbound Donald Douglas Drive which is west of Lakewood Blvd. and north of Spring Street.

The Airport's four-level parking structure, constructed in 1984, can accommodate 1,050 vehicles. A surface parking lot containing an additional 502 parking spaces is located next to the parking structure. A short-term, metered lot is located to the south of the terminal building. The three areas combined offer a total of 1,552 spaces and easy access to the terminal.

The Airport is served by regularly scheduled Long Beach Transit buses (Route 111). Additionally, regularly scheduled express service, which is operated by a private motorcoach service, is available to connect Los Angeles International Airport (LAX),

Long Beach Airport, John Wayne Airport, Disneyland and nearby hotels.

Currently, ground access to the Airport is adequate. However, significant property development has been undertaken recently in the vicinity of the Airport. These new development projects include Airport Business Park, Kilroy Airport Center, and McDonnell Douglas Corporation expansion. Over one million square feet of office area has been constructed. It is anticipated that another one million square feet of commercial buildings will be developed in the near future. Due to the concern about additional traffic to be generated from these recently completed and proposed commercial development projects in the airport area, a trip reduction plan is required for all projects within this area. The goal for the trip reduction plan is to reduce commute trips by at least 20%, and to increase the average vehicle ridership to 1.5. All developers and tenants are in the process of establishing a Transportation Management Association to coordinate and monitor the trip reduction plan. Additionally, in order to minimize traffic congestion in this area, major street improvement programs are proposed to improve operation at major intersections and to increase street capacity. These improvement programs will be discussed in detail in Chapter 5.

History of the Airport Master Plan

The first known overall plan for the airport was adopted by the City Council in 1940. It served to guide airport development through the World War II period. In July, 1955, the City approved a plan to extend the diagonal runway (12/30) to a full 10,000' and to acquire additional clear zone land.

A later master planning effort by the Ralph M. Parsons Company was completed in March of 1979. This plan foresaw a significant increase in scheduled air carrier flight activities. However, this proposal exceeded the City Council noise control policy existing at that time (the policy limited such flights to 48 per week). Consequently, the plan generated significant controversy from both residential and aviation interests.

As a result of the controversy, the City Council appointed the Airport Advisory Task Force. After approximately six months of meetings, this Task Force presented 17 recommendations to the City Council. The Council adopted the recommendations and implementation ordinances in 1980-81. Included in the recommendations was an increase of air carrier flights from the then current 48 per week (1979) to 15 per day, provided that quieter aircraft (FAR Part 36 Stage 3 Aircraft) would be utilized. One purpose of the proposed 15 daily flight limit was to allow the City to bring its airport into conformance with the State Noise Law (Title 21 of State Administrative Code).

In fulfillment of the City's flight allocation ordinance provision to reasonably accommodate new air carrier flights, a flight reallocation was conducted in April of 1983.

Unfortunately, both air carriers and area residents were not satisfied with the new allocation plan. Subsequently, this plan was challenged in Federal Court by both groups. The Federal Court blocked the City's attempt to implement a new set of ordinances resulting from the Part 150 planning effort, and in so doing authorized additional daily flights, bringing the total number to 41 per day. The decision of the Federal District Court is now on appeal.

Because of this pending court appeal, no discussion can take place regarding the future of air carrier operations. Thus, when the final court decision is rendered, preparation of an appropriate airport master plan should be pursued and the adopted master plan should be incorporated into this document.

3.1.6 Port Of Long Beach

The Port of Long Beach is owned by the City of Long Beach and operated by the Harbor Department. Under the provisions of the City Charter, administration and control of the Long Beach Harbor Department is vested in a five-member Board of Harbor Commissioners. The Harbor Department is responsible for the preparation and updating the Port's Master Plan.

The developed area of the Port covers approximately 2,270 acres of land which includes eleven operating piers. Over the last seven decades, additional terminal facilities were constructed to fill the need for additional commerce in the area. The recent increase in business with the Pacific Rim nations has changed the center of U.S. trade from the Atlantic to the Pacific coast. This dramatic change is establishing the west coast as the nation's dominant trade gateway.

In the past five years, the amount of cargo coming in to this region has increased tenfold. During the 1987-88 fiscal year, more than 63.6 million metric revenue tons of cargo valued at over $45 billion moved in and out of the Port. Today, the Port of Long Beach ranks as one of the top ten busiest ports in the world.

According to the study, The Economic Impact of the Ports of Los Angeles and Long Beach, prepared by Temple, Barker & Sloane, Inc., the Ports of LA/LB stimulated a total of 363,000 jobs and $39 billion in sales revenues throughout greater Los Angeles during 1987 (Table 5). Port related payrolls were $8.1 billion, and one out of every 17 area jobs is port related. Industries producing goods for export and port related retailers are responsible for the majority of employment. As a result, the two Ports stimulate extensive economic activity throughout greater Los Angeles, and the State of California.

Freight Movement and Petroleum Distribution

A. Truck Traffic

The Long Beach Freeway provides the primary linkage between the Port and the Los Angels Basin. As a result, this freeway has become very heavily travelled by trucks moving in and out of the Port. In 1989, the Port of Long Beach generated approximately 8,650 truck trips per day. Since this freeway also serves as a major access to the Port of Los Angeles, the truck traffic generating from both Ports represents over 17% of total daily trips carried by the Long Beach Freeway. The average daily trips (ADT) for all traffic on this freeway is shown on Fig. 12 at various locations along the route.

Table 5

Total Annual Economic Impacts
Ports of LA/LB, 1987
Five-County Region

(dollars in millions)

	Employment	Output	Wages	Value-Added	State and Local Taxes
Port Industry	58,900	$ 3,970	$1,349	$2,228	$ 184
Port Capital Spending	2,400	180	64	119	9
Port Tenants	27,300	2,784	649	1,504	106
Port Users Outbound Inbound	107,500	13,194	2,561	5,537	429
Subtotal	363,300	$39,363	$8,108	$16,283	$1,244
Port users-Retail	313,100	10,005	4,827	7,289	553
	676,400	$49,368	$12,935	$23,572	$1,797

Source: TBS analysis

In comparison with other freeways in this region, the Long Beach Freeway carries the highest percentage of truck traffic. This high volume of truck traffic has not only created serious maintenance problems on the freeway itself, but also posed a very real safety threat to commuter and casual automobile traffic. It also contributes to the growing problem of demand nearly exceeding capacity. This problem will become increasingly important as downtown grows as an office and commercial center, and as the Queensway Bay waterfront becomes more successful as a tourist destination. Several positive steps have recently been taken to reduce the demands on the Long Beach Freeway. The most significant is the move to create a consolidated rail-truck corridor on Alameda Avenue. This and other port related improvement projects will be discussed in detail in the Chapter on Recommendations.

B. Rail Service

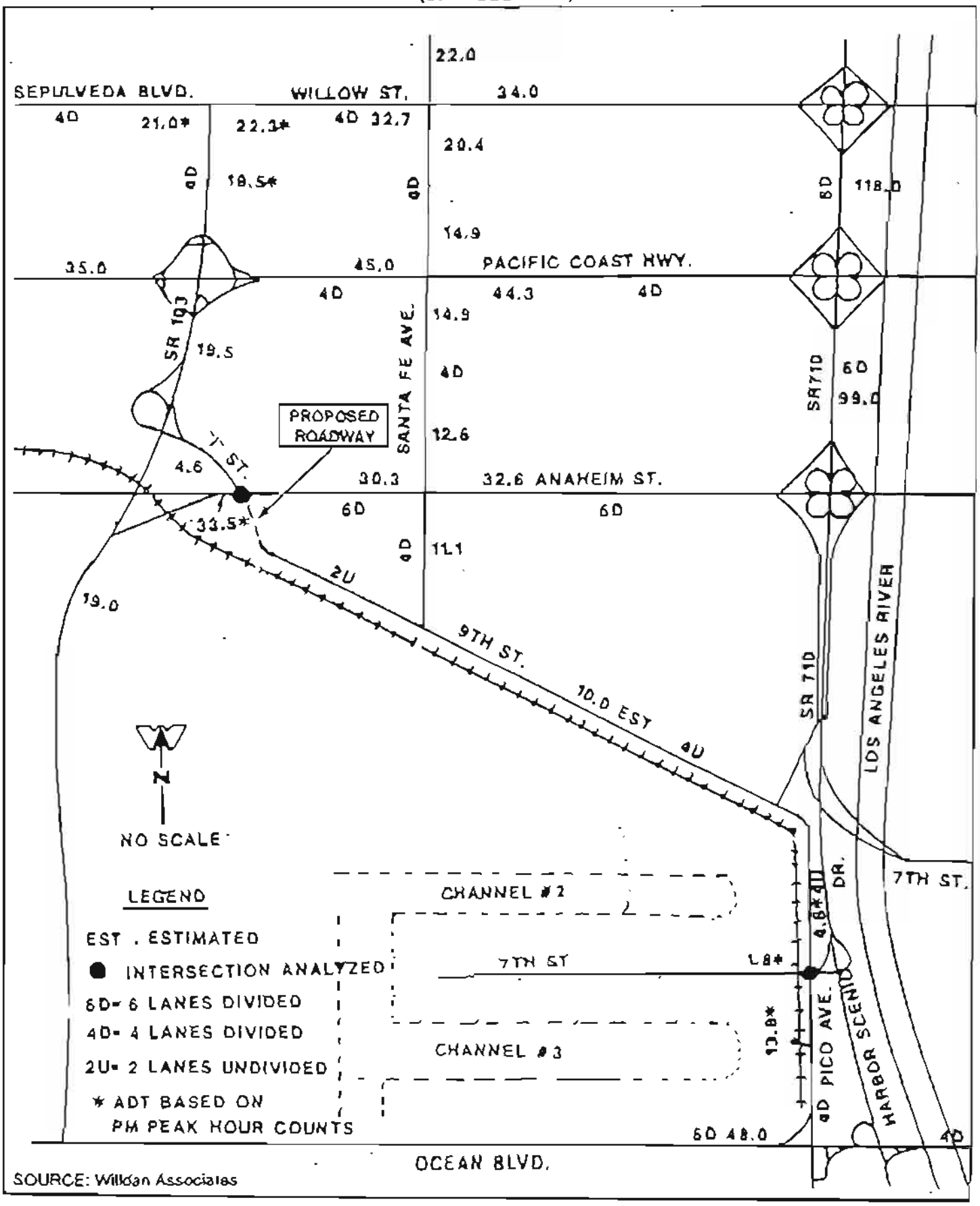
The rail service to the Port is provided by the Union Pacific, Southern Pacific, and Atchison, Topeka and Santa Fe Railroads. Fig. 13 illustrates the existing railroad network in the City. The current train traffic levels on harbor area branch lines are shown on Fig. 14.

Presently, most freight entering or leaving the Port is transported by truck with resulting impacts on the region's street and freeway system as discussed in the previous section. However, intermodal transportation has become a significant part of the container shipping industry and the usage of rail will increase dramatically in the future. The integration of rail facilities into the overall port transportation system is an essential part of the Port's master planning effort of the 1990's. Many studies have indicated that the development of on-dock double-stacked container train (DST) facilities will maintain and enhance the stature of the Port as a major intermodal port.

There are significant planning challenges in developing on-dock double-stacked train facilities. Careful layout of the lead track and support track is required to allow efficient train access and storage within the terminal.
Additionally, grade separations are needed to minimize the delay to vehicular traffic at locations where the rail lines cross streets at grade. Using the Double Stack Train Study of March 1988, the Port has evolved a workable DST plan for implementing on-dock DST facilities at its current and near-future container terminals. These proposed facilities are illustrated in Figure 15.

FIGURE 12-EXISTING AVERAGE DAILY TRIPS IN THE HARBOR VICINITY

(IN THOUSANDS)



SOURCE: Willdan Associates

FIGURE 13

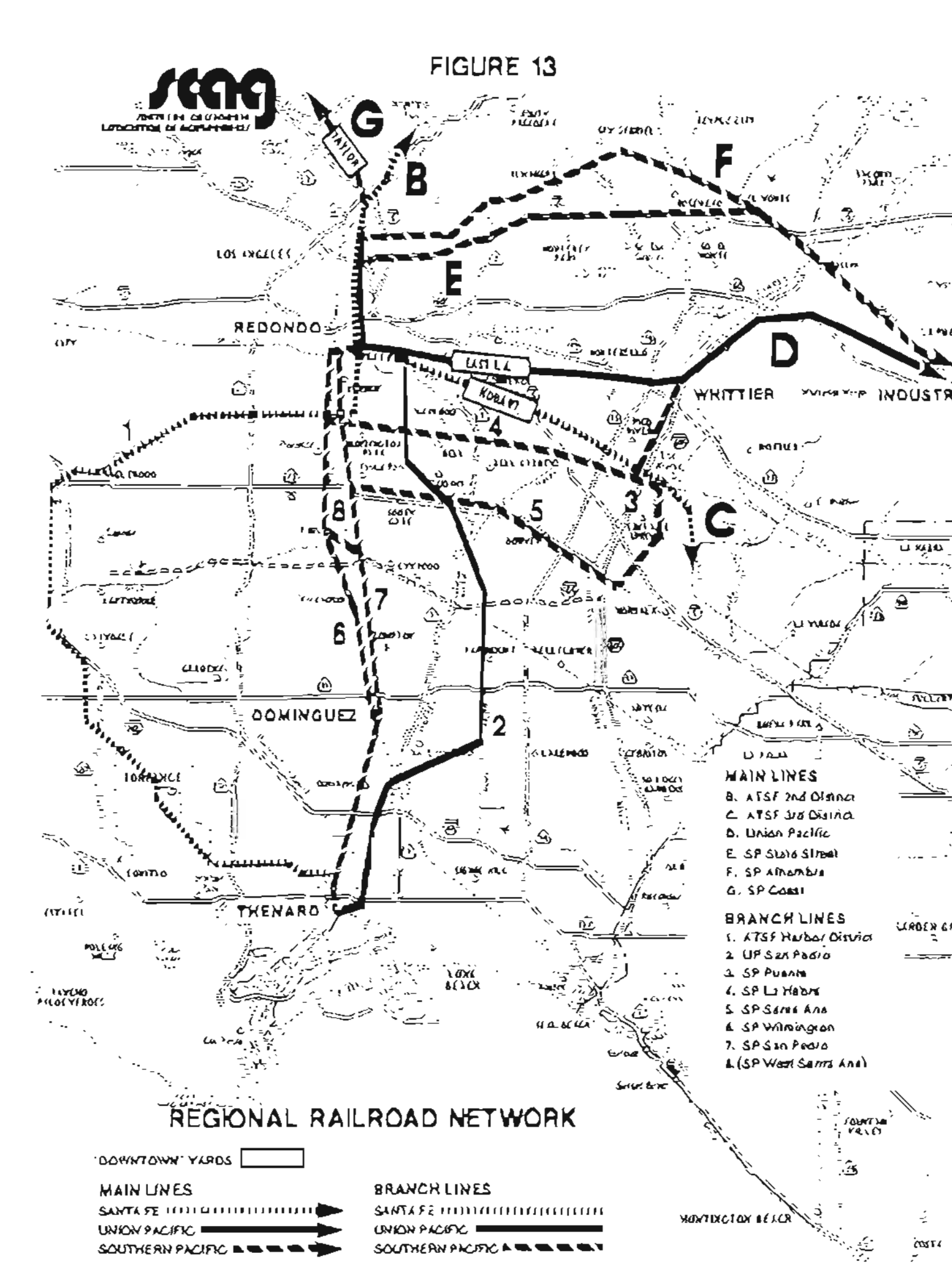
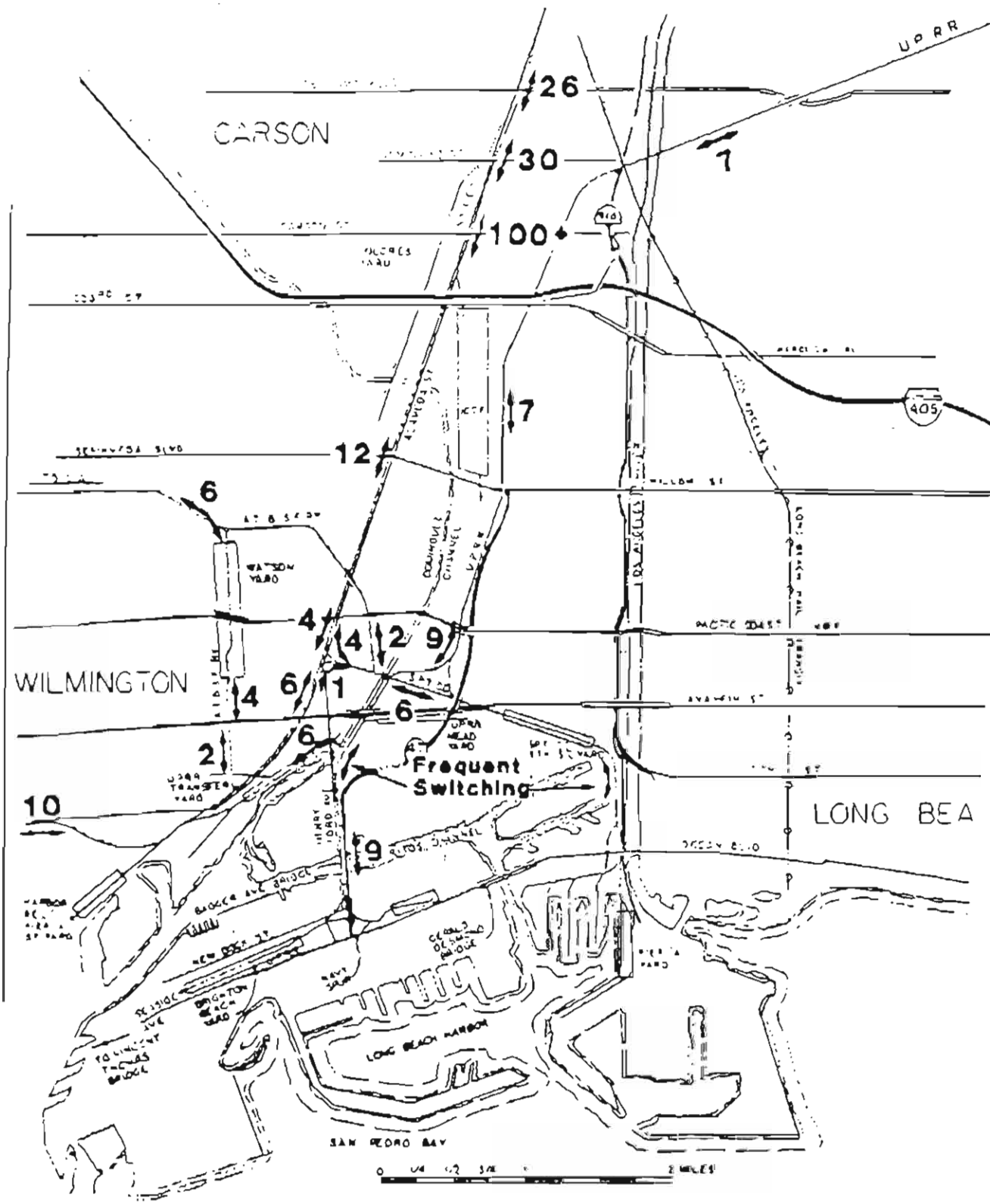
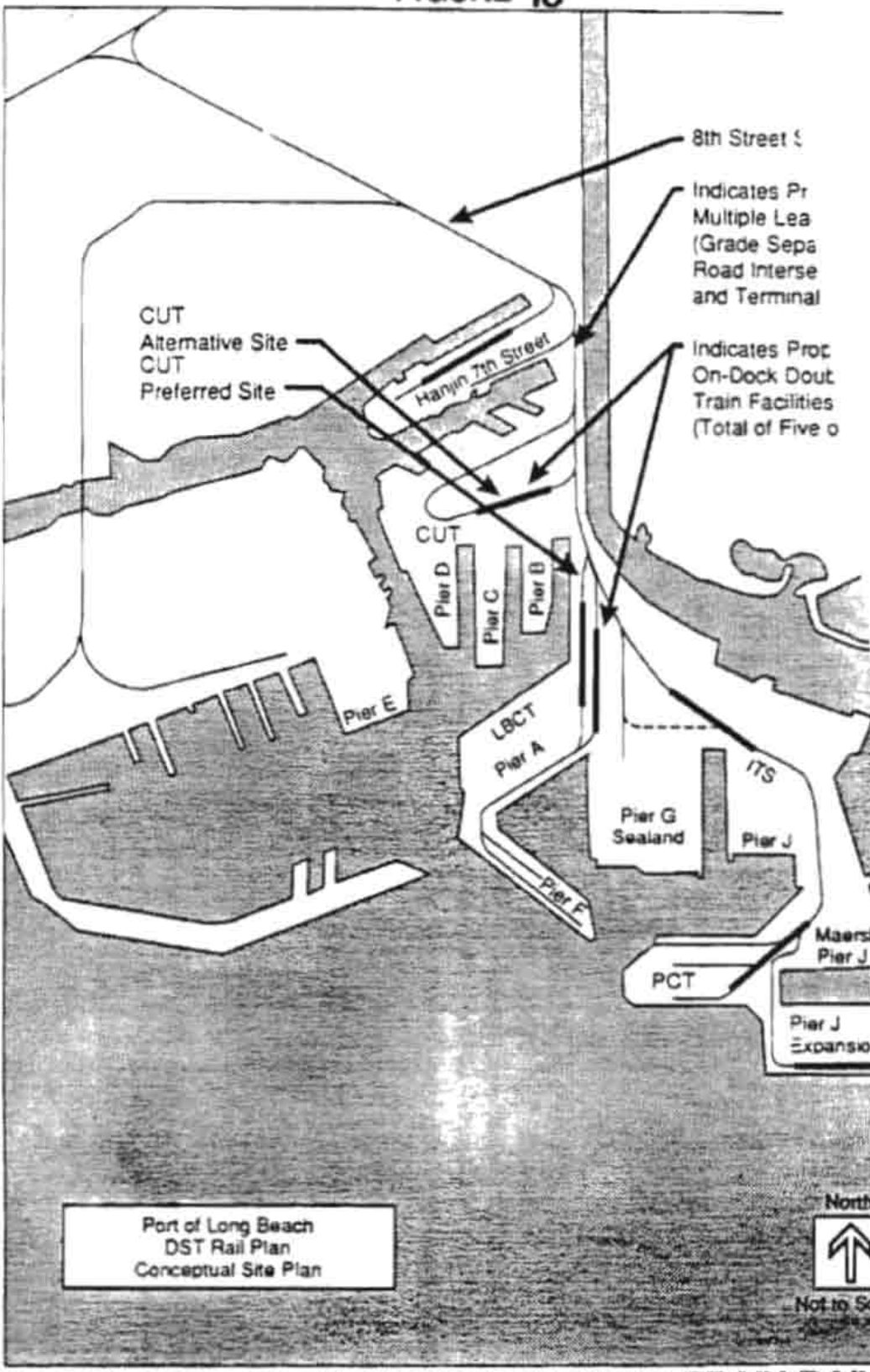

scag
TAYLOR
REDONDO
WHITTIER
DOMINGUEZ
TORRANCE
CERRITOS
LOS ANGELES
MAIN LINES
B. ATSF 2nd District
C. ATSF 3rd District
D. Union Pacific
E. SP State Street
F. SP Alhambra
G. SP Coast
BRANCH LINES
1. ATSF Harbor District
2. UP San Pedro
3. SP Puente
4. SP La Habra
5. SP Santa Ana
6. SP Wilmington
7. SP San Pedro
8. (SP West Santa Ana)
REGIONAL RAILROAD NETWORK
"DOWNTOWN" YARDS
MAIN LINES
SANTA FE
UNION PACIFIC
SOUTHERN PACIFIC
BRANCH LINES
SANTA FE
UNION PACIFIC
SOUTHERN PACIFIC

FIGURE 14



TRAIN MOVEMENTS PER DAY (EXISTING)

FIGURE 15



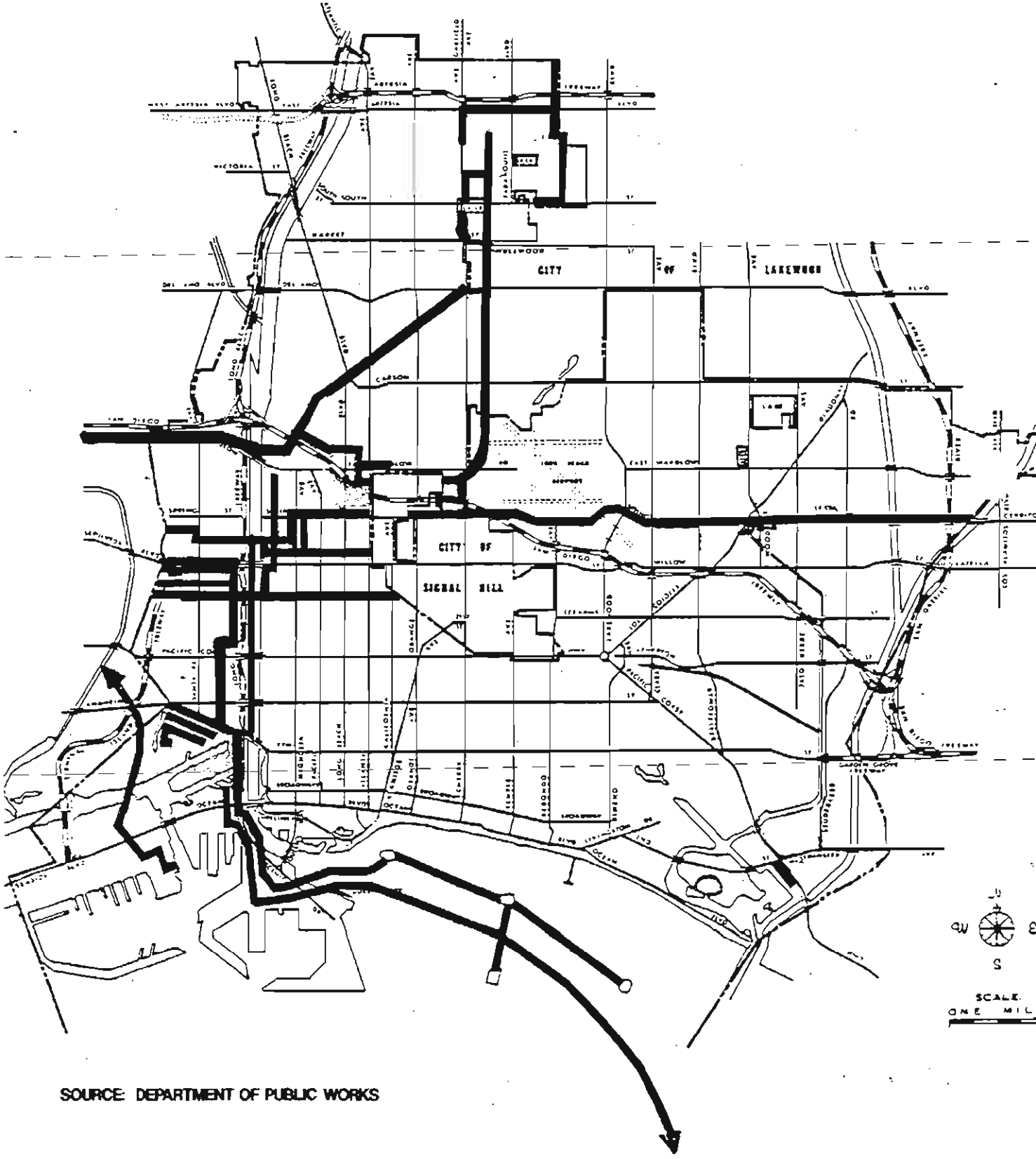
ORT OF LONG BEACH DOUBLE-STACKED TRAIN RAIL

C. Pipelines

The major pipelines in the City exist for the purpose of facilitating petroleum movement between petroleum terminals at the Port, local oil-fields, storage tanks, and local refineries. As indicated in Fig. 16 major pipelines are primarily concentrated in the Port area and in an area bounded by Wardlow Road, Cherry Ave., Willow Street, and the western City limits. It is the City's policy to place any new pipelines within these established corridors, if possible.

FIGURE 16

EXISTING MAJOR PIPELINES



SOURCE: DEPARTMENT OF PUBLIC WORKS

3.2 CURRENT FUNDING SOURCES

INTRODUCTION

This section describes the sources of funds for street and freeway improvements in the City of Long Beach, and also the funding sources for public mass transportation capital projects and operating subsidy. Both funding programs and funding sources are presented.

Transportation funding sources are divided into two categories, conventional and extraordinary. Conventional transportation funding sources are those derived from taxes traditionally imposed on motor vehicle fuels. These taxes are levied in various forms by the local, state and federal governments. The revenues from these taxes are in turn allocated to local governments responsible for providing, improving and maintaining the transportation facilities in their jurisdictions through various funding programs that contribute to the costs of such activities. Extraordinary funding sources are those that are derived from developers and businesses that impact the transportation system and that would benefit from its improvements.

FEDERAL CONVENTIONAL FUNDING SOURCES

The federal government currently (1991) levies a 9-cent per gallon gasoline tax and a 14-cent per gallon diesel tax on all motor fuels, as well as heavy truck taxes. The funds derived from those sources are administered through the Federal - Aid Highway Program under the terms of the Surface Transportation Assistance Act (STAA). A key part of the STAA is the Federal Aid Urban (FAU) program that provides funds to cities and counties for improvements to roads on the federal aid urban system of arterials. Eighty percent of all FAU monies are distributed on a population basis to cities and counties by the Los Angeles County Transportation Commission (LACTC).

The remaining twenty percent are regional FAU monies administered directly by LACTC to encourage the development of regional transit and highway projects that are beyond the capabilities of local jurisdictions.

STAA funds for public transit are distributed by the Federal Urban Mass Transportation Administration (UMTA) through various programs. The heart of the UMTA Program is Section 9, which provides funds that are distributed in this region through the LACTC in conjunction with state and local funds to help subsidize municipal bus operators. Likewise, Section 8 monies are provided to insure that short-range transit planning and special projects of municipal operators receive sufficient funding.

CALIFORNIA CONVENTIONAL FUNDING SOURCES

The State of California levied a nine-cent per gallon gasoline tax on motor fuels through August, 1990. An additional five cents was imposed in August, 1990 and one-cent will be added every year for the next four years. (A total of an additional nine cents) The receipt of this additional tax revenue is contingent upon the City being in conformance with the Congestion Management Program. The State Highway Account receives 48.9 percent of the revenues from this tax while the remaining 51.1 percent is allocated by formula to local governments (subventions) through the LACTC in this region for maintaining and improving streets. The State Highway Account funds freeway and highway construction throughout the state through the State Transportation Improvement Program (STIP).

Federal and State highway and transit funds are programmed to eligible projects through the Transportation Improvement Program (TIP). Local agencies submit candidate projects to the LACTC which then submits a county program to SCAG. The resultant document becomes the Regional TIP; it in turn is submitted to the California Transportation Commission to become part of the State TIP. Projects not included in the STIP are not eligible for federal or state funding.

California also has a six percent statewide sales tax of which 1/4 percent is dedicated to local transportation and allocated back to each county according to the amount of tax collected in that county. These funds are administered through programs created by the State Transportation Development Act (TDA) under SB821, and carried out in this region by the LACTC in conjunction with the Southern California Association of Governments (SCAG). TDA funds are used primarily for the support of transit, although some of those funds may be used for street and road purposes when it can be demonstrated that there are no unmet transit needs within a jurisdiction. They may also be used for pedestrian and bicycle facilities.

LOS ANGELES COUNTY CONVENTIONAL FUNDING SOURCES

The County of Los Angeles derives funds for transit purposes from the 1980 voter approved Proposition A one-half cent sales tax. These funds are administered by the LACTC for the support of mass transit operations and capital improvements through per capita allocations to each local jurisdiction and through direct LACTC funding of regional transit projects.

EXTRAORDINARY FUNDING SOURCES

Extraordinary funding sources are generally in the form of specific assessments affecting certain groups of people who are either direct beneficiaries of particular transportation improvements or who are the principal contributors to increasing traffic congestion. These assessments are usually levied by local and county governments. Included in this category are

benefit assessments and developer impact fees as well as user fees. Benefit assessment districts allow for land owners to be assessed a fee which reflects an increase in surrounding land value as a result of transportation improvements. A development transportation impact fee is a one-time fee assessed to commercial and residential developments at the time building permits are taken out. User fees are collected from individuals using a particular public transportation facility. Such extraordinary sources of transportation funding are becoming much more important as federal funding programs decline and local needs increase because of the traffic impacts of growth.

CURRENT FUNDING SOURCES USED BY CITY OF LONG BEACH

A. Major Funding Sources

1. Federal Aid-Urban (FAU) System Grants

Under this program, funds are received for road improvement projects submitted to the State. The City is reimbursed for 86 percent of the cost of these road projects.

FY 89-90 Revenue was $1.9 Million (M)

2. State Gas Tax Funds

City receives approximately 2.1 cents of the 9 cent state tax on gasoline, distributed on a per capital basis. Use of this revenue is restricted to construction, improvement and maintenance of public streets and related facilities.

FY 89-90 Revenue was $5.5M

3. Los Angeles County Proposition "A" Funds for transit capital projects and operating subsidies.

City receives a share, based on population, of the additional one-half percent sales tax collected in Los Angeles County and administered by the LACTC.

FY 89-90 Revenue was $4.2M

4. State SB 821 Funds

These funds are distributed by the LACTC and go towards improvements of the City's bikeway and pedestrian access system.

FY 89-90 Revenue was $236,270

B. Other Funding Sources

1. Developer Contributions

As a condition of approval for a land use project, the Planning Commission may require the developer of a property to deposit funds for construction of new roads or improvements to existing facilities. The improvements may include roadway paving, traffic signals, street signs, street lights, sidewalks, and utilities relocation.

2. Tax Increment Financing

This is a complex type of financing used by the City's Redevelopment Agency to fund improvements in specially designated redevelopment project areas. With this financing, the project area is designated with a tax base equivalent to the initial value of all the real property within the area. The area is then redeveloped with funds from the sale of tax increment bonds. After the improvements are made, property values increase and more tax revenue is collected; the tax increment above the initially established level is then used to retire the bonds. Alternately, projects may be funded directly from the revenue stream. Improvements financed by tax increment include street widenings; reconstruction of curbs, gutters and sidewalks; and storm drain and sewer improvements. The Westside Industrial District is being improved in this manner.

3. Special Assessment and Mello-Roos Districts

This type of financing is employed for improvements that benefit particular properties. Assessment districts are formed by City Council after a public hearing process that results in assessing property owners to pay for the cost of improvements. Residents make yearly payments to retire the assessment bonds. The City of Long Beach has formed assessment districts for reconstruction of alleys and for lighting improvements. This type of financing can also be used to finance street reconstruction, curbs, sidewalks and other public improvements. As an example, traffic improvements in the airport area will be funded from an Airport Assessment District supported by the area developers and organized by the City.

4. Other State and Federal Grants

As the state and federal governments finance special grant programs for streets, the City applies for these funds; however, there has been a general decline in state and federal grants-in-aid to finance local street projects. Grants have been received by the City over

the last several years for synchronization of traffic signals and the development of a computerized inventory of traffic control devices.

5. Aid to Cities (ATC)

Los Angeles County provides about $470,000 each year to the City for the maintenance and improvement of major arterials within the City limits. These ATC funds are subject to yearly appropriation and must be spent in accordance with county policy.

C. General Fund

In addition to the above, more than $16 million per year of City General Fund monies are expended in the Public Works operating budgets on street related maintenance.

RECENTLY ENACTED TRANSPORTATION LEGISLATION

The Transportation and Passenger Rail Bond Funding package passed by the Legislature and signed by the Governor received voter approval in the June, 1990, elections as Propositions 111 and 108. They basically authorize a constitutional amendment reforming the Gann spending limit, the sale of bonds to provide funding for rail transit projects together with Proposition 116, and the expenditure of additional gas tax revenues for highway purposes.

The main provisions of the transportation package include:

1. Increases in the state gas and diesel tax by 5 cents per gallon on August 1, 1990 with a one-cent increase each year thereafter for the next four years;

2. A 40 percent increase in commercial vehicle weight fees with an additional increase of 10 percent effective January 1, 1995;

3. A $1 billion authorization of general obligation bonds for passenger rail transit. Authorization for an additional $2 billion is to be placed on the ballot in 1992 and 1994.

The revenue raised by the package is to be allocated for the following transportation purposes:

a) $3.5 billion will fund the current shortfall in the State Transportation Improvement Program (STIP), the projects of which are already specified in the current 1988 STIP;

b) $3 billion is to be provided to cities and counties for local street and road purposes. To be eligible for those funds, cities and counties must produce a Congestion Management Plan (CMP) that includes service standards for roads, highways and public transit, trip reduction efforts to promote alternative transportation methods, and programs to measure impacts of development on regional transportation systems. The CMP capital program is to be the basis for the Regional Transportation Improvement Program (RTIP) adopted for the region by the regional transportation planning agency (SCAG in this region);

c) $3 billion is to be provided for the "Flexible Congestion Relief Program" (FCR). This program requires that funds be spent on the most cost-effective projects designed to reduce congestion. Highways, local roads or transit guideway projects are eligible to compete for funds under this program;

d) $3 billion is to be provided for mass transit guideways, potentially from the bond proposals;

e) $1 billion is to be provided for transportation systems management (TSM) projects on state highways and local streets designed to increase carrying capacity without increasing through traffic lanes;

f) $500 million will subsidize transit operations by funding the State Transit Assistance Program (TAP).

IV. PLANNING FOR THE FUTURE

IV. PLANNING FOR THE FUTURE

4.1 REGIONAL CONCERNS

During the past decade, Southern California has been one of the fastest growing regions in the United States. The qualities that make this region attractive, such as mild weather and economic opportunities, will continue to draw new settlers. According to the Southern California Association of Governments (SCAG), by the year 2010 the projected population will reach 18.3 million in the six-county area (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties). This rapid growth marks greater Los Angeles as one of the fastest growing metropolitan areas in North America or Europe. This means within the next two decades, population is projected to increase by 6 million in this region and jobs are expected to increase by as much as 3 million. Table 6 presents projected population and employment growth in this region. This regional growth pressure will be felt throughout the entire Los Angeles basin. Long Beach is no exception.

This dramatic growth paints a gloomy picture for future transportation. If people maintain the same driving habits, an additional 16.8 million daily trips will pour into the streets, as predicted by SCAG. In comparison with the 1984 base year, these additional trips represent an increase of 42%. The consequences of this increase are summarized in Table 7.

Presently, there are about 7 million work trips each day in the region. By the year 2010, daily work trips are projected to increase to more than 10 million. These additional trips will bring traffic to a near halt on many freeways and local streets during the peak hours. Consequently, rush hour trips on freeways could take more than three times as long as they do now. The forecast shows that the average speed on a freeway will be reduced from 47 miles-per-hour (MPH) to 24 MPH. Commuters, already frustrated by the current traffic congestion problems, will face much longer delays on freeways and local streets unless improved access and alternative transportation modes can be established. Better managing this future urban growth, in order to maintain mobile and livable environments, remains an important challenge in the years to come.

Long Beach does not function in isolation, but is linked economically, socially, politically, and physically with the surrounding communities which make up the Greater Los Angeles region. Geographically, Long Beach is situated between the Los Angeles business center and the fast growing Orange County. The

TABLE 6

POPULATION AND EMPLOYMENT GROWTH BY COUNTY

	POPULATION		EMPLOYMENT	
COUNTY	1984	2010	1984	2010
Imperial	102,000	160,000	37,000	64,000
Los Angeles	7,863,000	9,949,000	4,053,000	5,524,000
Orange	2,065,000	3,050,000	1,048,000	1,920,000
Riverside	758,000	1,969,000	247,000	466,000
San Bernardino	1,015,000	2,218,000	325,000	640,000
Ventura	580,000	910,000	213,000	340,000
Region	12,383,000	18,256,000	5,923,000	8,954,000

Source: SCAG Draft Growth Management Plan 8/88.

TABLE 7

MOBILITY PERFORMANCE INDICATORS

	1984	2010
DAILY TRIPS (millions)	40.2	57.0
WORK COMMUTES(millions)	7.3	10.3
VEHICLE MILES TRAVELED(000's)	221,292	376,187
VEHICLE HOURS TRAVELED (000'S)	6,343	19,575
HOURS OF DELAYS (000'S)	629	10,132
Percent Delay	10%	52%
AVERAGE SPEED (MPH)		
All facilities	35	19
Freeways	47	24
MILES OF CONGESTION		
AM Peak	452	2,564
PM Peak	856	4,567
TRANSIT RIDERSHIP		
Home-to-Work Trips	6.6%	5.1%

Source: 1989 Regional Mobility Plan (SCAG)

405 Freeway, a major transportation spine connecting these two areas, bisects the City; the 605 Freeway, 710 Freeway and 91 Freeway travel along the edges of the City. These freeways move an immense amount of traffic through and around the City. When freeways become congested, some of this through traffic spills over to our local streets. Consequently, the City's transportation system is impacted by this regional demand as well as by local travel and development patterns. According to SCAG, 30% of current traffic congestion on local streets is due to regional through traffic.

Some people may suggest the solution to Long Beach traffic congestion problems is to stop growth. In order to test of this assumption, the Long Beach Transportation Computer Model, prepared by Barton-Aschman Association Inc., was run using a scenario which reflects 2010 growth outside of Long Beach, but no new development in Long Beach. The Level of Service of the Long Beach street network resulting from this scenario is presented in Figures 17 and 18. This scenario clearly indicates that even with no new development in Long Beach, widespread traffic congestion would nevertheless exist due to the impact of continuous growth in the remainder of the region. In fact, if Long Beach had no growth, and no locally-induced congestion on local streets, our relatively trouble-free streets would become even more attractive as alternative routes for much more through traffic.

Because this region will continue to grow in size, complexity and importance as the economy strengthens and the population expands, Long Beach must share in the regional responsibility to find effective solutions to solve traffic problems which we will face in the years ahead.

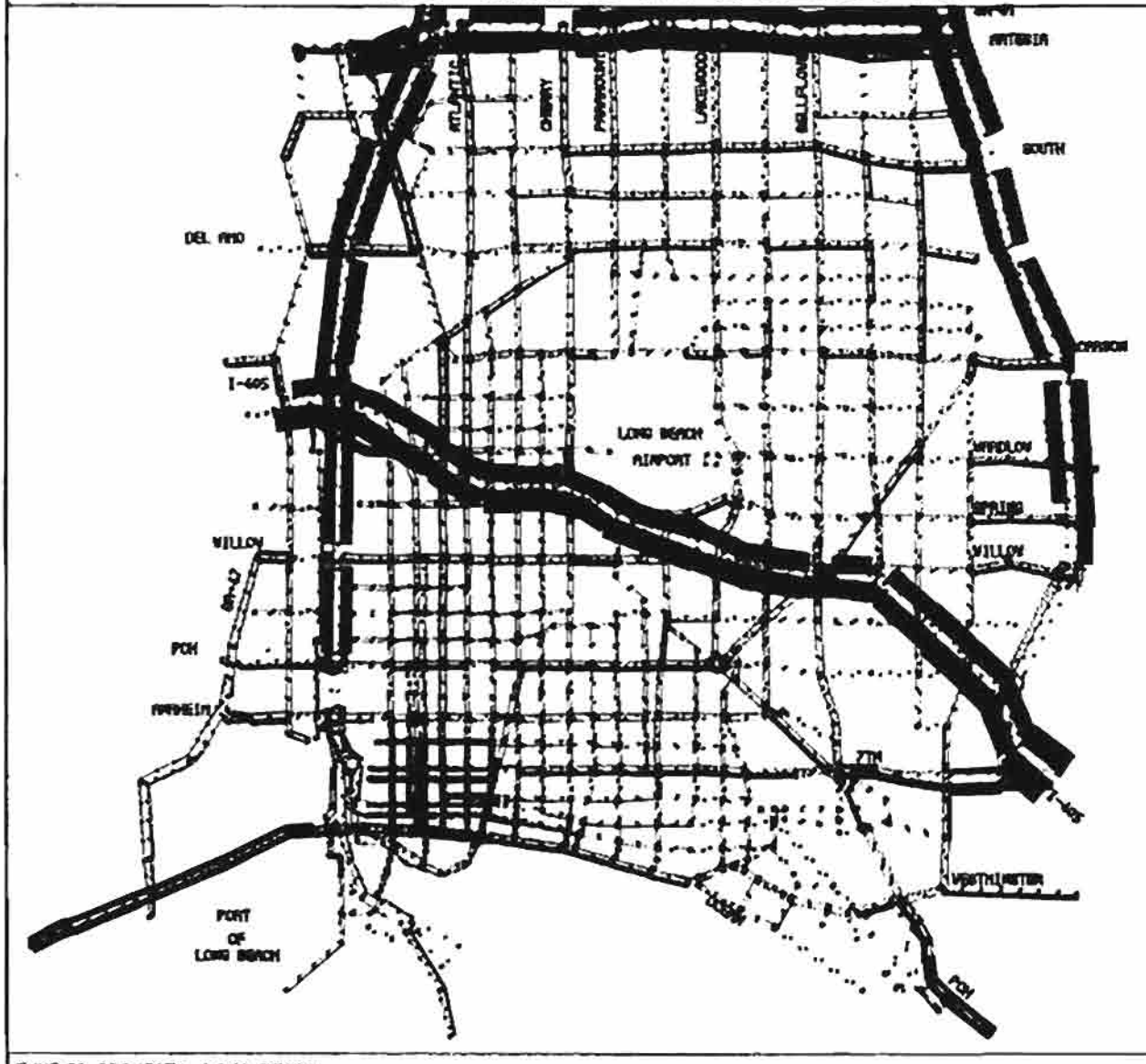
Regional Mobility Plan

In order to assess the transportation needs for the region, SCAG prepared the Regional Mobility Plan in February, 1989. The goal for the Regional Mobility Plan is to recapture and retain the transportation mobility levels of 1984. To achieve this ambitious goal, the plan recommends four important strategies: Growth management; demand management; system management; and facility development. Each component plays an important part in the success of the entire plan. If, for instance, the growth management program has only limited success, facilities development may have to be increased to meet mobility goals. Otherwise, the plan will require changes or its objectives may require re-evaluation.

Under these strategies:

- SCAG would work with county and local governments to encourage a better balance of jobs and housing in sub-regional areas. More people would live closer to where they

NO GROWTH SCENARIO



emme/2

LINKS:
TYP=10,40
COL-IND: UL1
THRESHOLD:
LOWER:
UPPER:

Los Key

Green A-D
Orange E
Red F

VOLUME

SCALE: 1000

2000
4000
6000
8000
10000

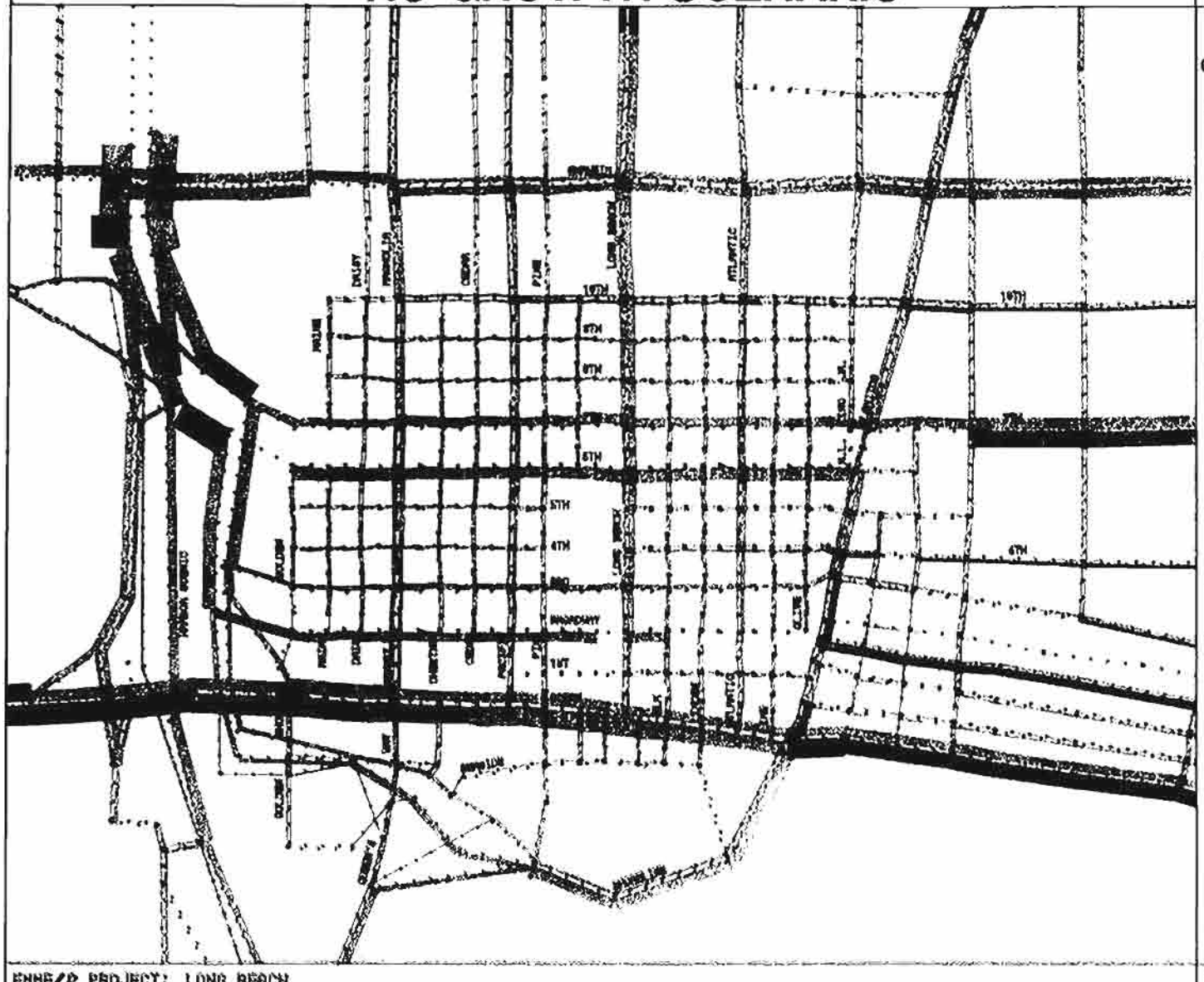
WINDOW:
-1.261/-1.028
11.305/ 8.445

EMME/2 PROJECT: LONG BEACH
SCENARIO 20S: LB GROWTH MORATORIUM, 2010 LAND USE ELSEWHERE, 1987 NETWORK

DATE: 90 10 16
MODULE: 2.13
BR20S-BS.bd

FIGURE 17

NO GROWTH SCENARIO



emme/2

LINKS:
TYP=10,60
COL-IND: UL1
THRESHOLD:
LOWER: ******
UPPER: ******

LOS Key

Green	A-D
Orange	E
Red	F

VOLUME

SCALE: 250

500

1000

1500

2000

2500

WINDOW:
1.6319/ .4792
4.1727/2.3848

EMME/2 PROJECT: LONG BEACH
SCENARIO 205: LB GROWTH MORATORIUM. 2010 LAND USE ELSEWHERE. 1987 NETWORK

DATE: 90 10 16
MODULE: 2.13
B0386-BG....bd

FIGURE 18

work, and cross-region commute trips would be reduced;

- A program of managing transportation demand would induce commuters to change work and commuting patterns. Certain actions could reduce the number of trips made; others would redistribute necessary trips through the more efficient use of vehicles and by spreading peak period commute trips over more hours;

- New facilities would be added to the existing transportation system and give decided emphasis to modes that carry more than one person per vehicle, such as transit or car pooling;

- A two-level implementation effort would be established, consisting of constrained and unconstrained projects. Constrained projects and programs would be completed over the 20-year period with monies from existing sources of revenue, and unconstrained projects and programs would be completed over the 20-year period from additional revenues raised through the implementation of the proposed financial program.

The Regional Mobility Plan is a very ambitious plan. The Plan is based on major changes: (1) it calls for major reorientation of travel from single occupant auto to transit and to ridesharing; (2) it requires broad supportive action from local governments and significant financial support; and, (3) it is heavily based upon a range of important actions at every level in all sectors to provide the incentives and facilities to promote the implied behavioral adjustments. Without strong commitment from every quarter to implement the necessary actions, funding will not be secured, facilities and programs will not be implemented, and travel behavior change will not occur.

Air Quality Management Plan and Regulation XV.

In addition to traffic congestion problems, this region is also threatened by severe air pollution. Because emissions from mobile sources represent roughly 70 percent of today's total emissions, any effective measures to resolve traffic congestion will also significantly help us to attain clean air standards. In December, 1987, the South Coast Air Quality Management District adopted Regulation XV, the "Trip Reduction Plan", which requires employers who have 100 or more employees at one site to develop, implement, and report annually on plans to reduce single occupant vehicle ridership. In Long Beach, the target level is 1.5 persons for weekday work trip. By 1993, the Regulation XV rules may be applicable to firms with as few as 25 employees.

In 1989, the Air Quality Management Plan (AQMP) prepared by South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) was also approved by the State Air Resources Board. The AQMP has been submitted to

the E.P.A. for approval. Many of the recommended action programs contained in the Regional Mobility Plan are a part of the control measures as listed in the 1989 Air Quality Management Plan. A complete list of control measures can be found in Appendix "B".

Long Beach is committed to share its responsibility to find effective solutions to solve traffic problems and to improve air quality. Therefore, the goals and implementation strategies contained in the Regional Mobility Plan and the 1989 Air Quality Management Plan have been recognized throughout and incorporated in many aspects of this Transportation Element.

4.2 LOCAL GROWTH

A review of demographic and economic trends and land use policies will provide a basis to assess the future transportation needs in Long Beach. The newly adopted Land Use Element provides for continued growth in population and economic activity in accordance with the forecast for the year 2000. To facilitate the preparation of the 1989 Long Beach Transportation Study by Barton-Aschman Associates, Inc., its planning staff projected these forecasts to the year 2010. This projection utilized population estimates developed by the Department of Planning and Building, and employment estimates prepared by the Department of Community Development. Both estimates reflect the policy of increasing the ratio of jobs to housing units.

Table 8

Population, Housing & Employment Trends
City of Long Beach

	1987	2000(a)	2010(b)
Population	395,770	450,600	491,086
Housing	165,546	186,130	202,508
Employment	192,881	252,600	284,114
Job/Housing Ratio	1.17	1.35	1.40

(a) 1989 Land Use Element, City of Long Beach
(b) 1989 Long Beach Transportation Study, Barton-Aschman Associates, Inc.

If the forecasts are realized, the future increment of growth by the year of 2010 will be:

Population.....95,316 more people, an increase of 24%.
Housing .....36,962 new units, or a net increase of 32,379 (19.6%) after demolitions are subtracted.
Employment.....91,233 more new jobs, an increase of 47%.

Long Beach is one of the several multi-purpose activity centers in the region. As such, it provides a fairly high level of employment, service and recreational opportunities. It therefore tends to attract people in greater numbers than do single purpose cities.

The three employment sectors expected to show the highest increases are finance, insurance, real estate, retail trade, and services. These increases reflect continuing success in

international trade as well as the growing importance of tourism, retail trade, and services in the Long Beach economy.

Figure 19 identifies major activity centers in the City. As projected, the Downtown/Port Activity Center, the Airport Activity Center, and the Freeway Business Park are the employment centers where the majority of new job opportunities are anticipated. As projected, downtown central business district will exhibit the highest growth. According to the 1989 Long Beach Transportation Study, new building area is projected to be 9.6 million square feet of additional commercial floor space, an additional 4,750 hotel rooms, and over 20,000 additional multi-family dwelling units. This growth means that in the downtown area, an additional 37,000 residents, and over 40,000 employees are expected.

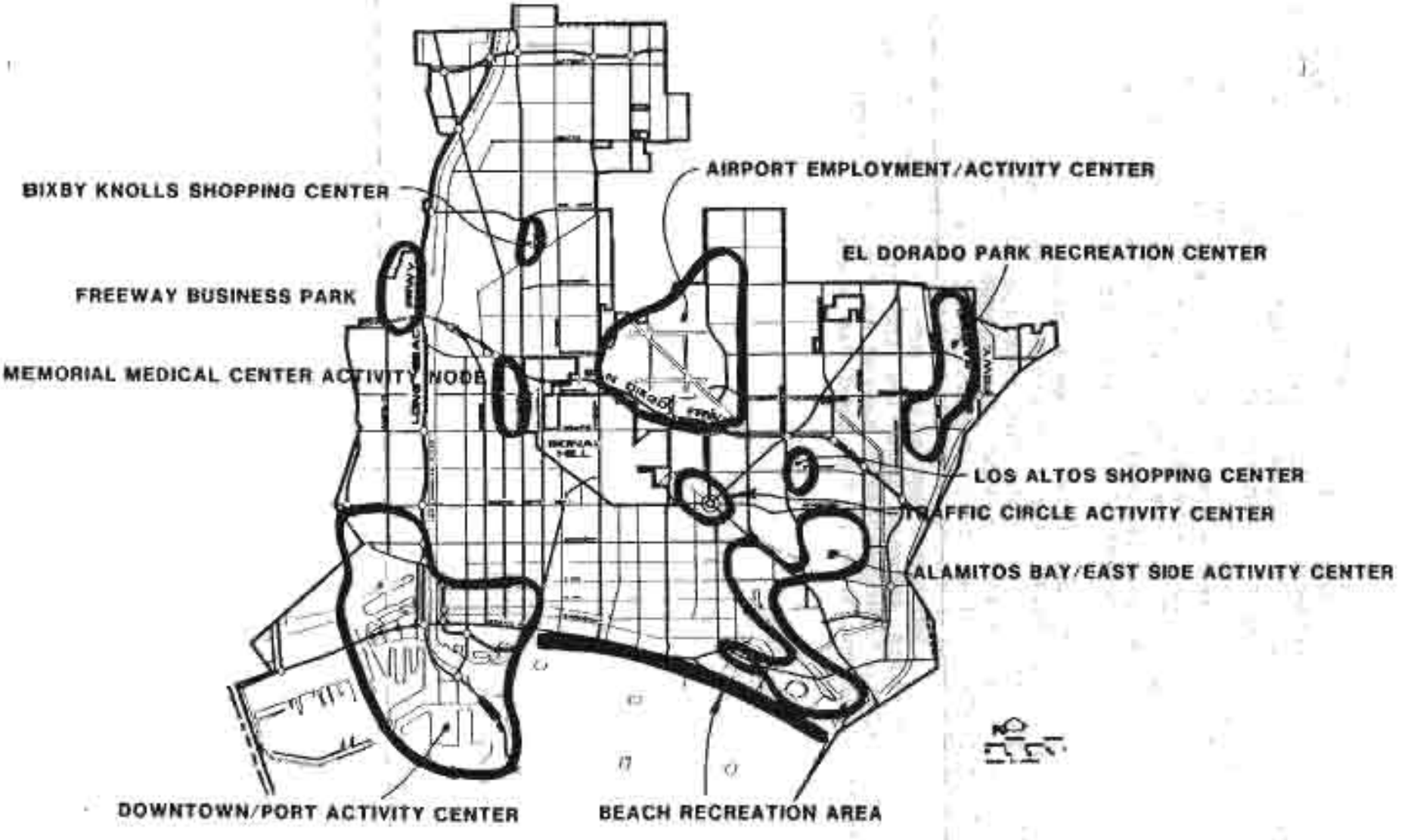
Based on the 2020 Plan, a long-range plan for the Ports of Los Angeles and Long Beach, the projected expansion will include 2,400 acres of new land-fill and 600 acres of development of existing land, 38 new terminals and seven miles of deep draft ship channels. If the ports are to be expanded according to this plan, the truck movements per day to and from the Port of Long Beach will be increased from approximately 9,000 to 22,000 trips.

Another fast growing area is at the Airport activity center. It is anticipated that over one million square feet of additional commercial floor space, 800 more hotel rooms and over 700 residential units will be developed in this area. This additional growth will generate an additional 12,000 vehicular trips.

It should be pointed out that although many discussions were held regarding the possibility that a major entertainment organization might develop an amusement park in the City, the final decision will not be made for several years. Therefore, the exact magnitude of the project scale is still speculative at this time. This potential development was not included in the future trip projection in this Element. It, and all other large new developments, as they become real possibilities, will be analyzed by the model and the Transportation Element will be amended to reflect any necessary changes.

In Long Beach, job growth outpaced housing growth in the 1980-89 period. While the job/housing ratio was about equal in 1980, the trend since then has been for the City to become more job rich. As projected, the job/housing ratio will be increased from 1.17 (1987) to 1.40 (2010). Recognizing the need to locate housing in close proximity to employment, the 1989 Land Use Element promotes high density housing in the vicinity of activity centers. It also permits mixed use projects in activity centers and along transit corridors.

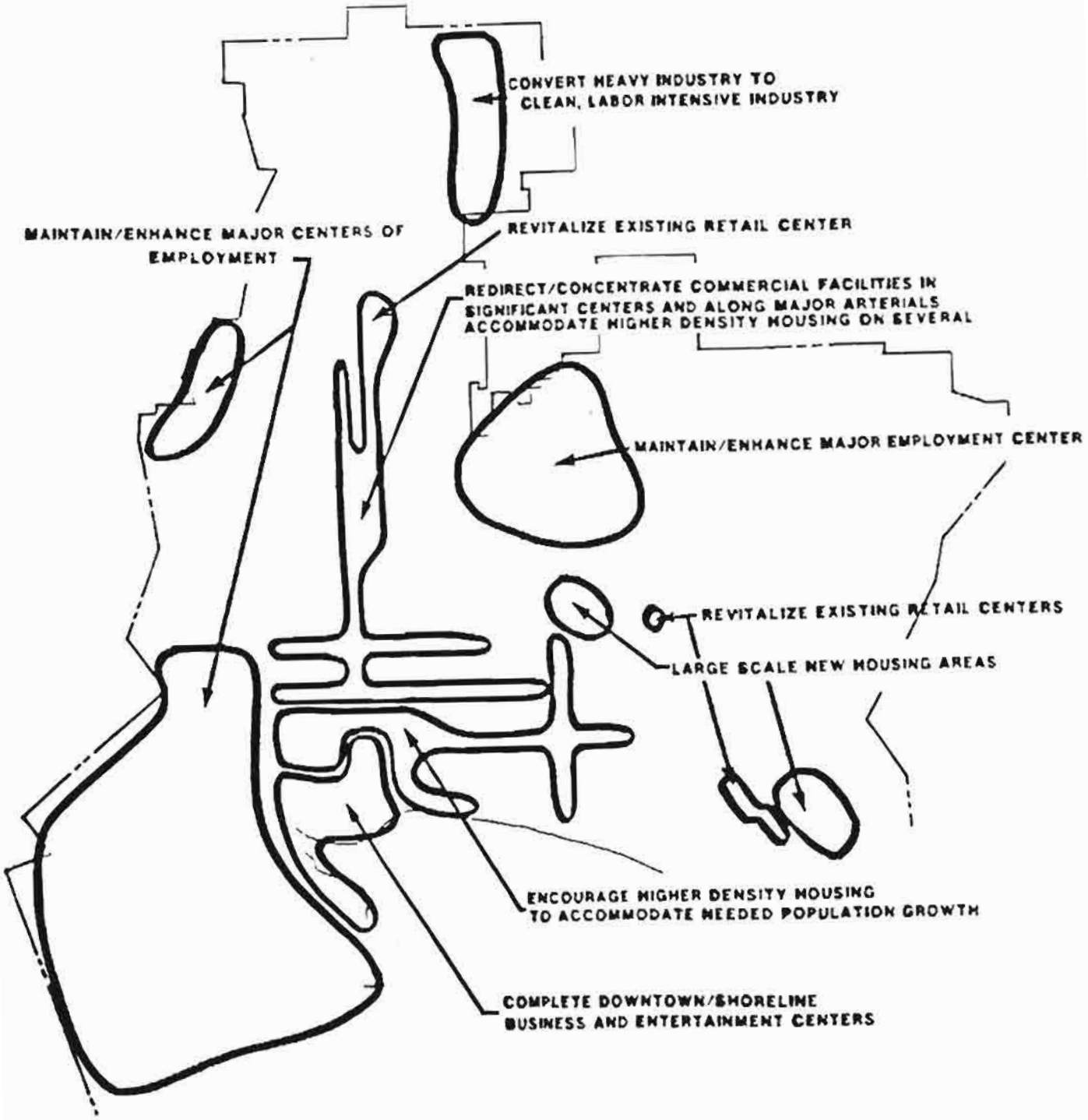
FIGURE 19
MAJOR ACTIVITY CENTERS



As guided by The Strategic Plan, the 1989 Land use Element provides for continued growth in population and economic activities. However, it also calls for maintaining and improving the overall quality of life. Two major development policies are directly related to transportation planning issues: first, the Plan calls for locating high density residential development in proximity to growing employment centers and along the major arterial corridors; secondly, recognizing arterial corridors as a special component of the City's structure, the Land Use Element identifies the unique relationship between the land uses and transportation systems along these corridors.

Figure 20 shows the future growth areas for higher density of housing, commercial and industrial developments. This future growth pattern can dictate the geographical distribution of trip generation and travel demand. As stated in the Land Use Element, future planning for the principal traffic arteries in Long Beach must take into account two fundamental aspects: first is the traffic they carry now and will carry in the future; second is the correlation between land use and function of streets. The City's future transportation demand is forecast based on the land use policies outlined in the Land Use Element.

FIGURE 20
GENERALIZED CONCEPT PLAN
FUTURE GROWTH AREAS



ALL OTHER AREAS...MAINTAIN EXISTING DENSITIES. PRESERVE AND ENHANCE NEIGHBORHOOD QUALITIES.

4.3 FUTURE TRANSPORTATION DEMAND

Based on the development assumptions outlined in the above section, the Long Beach Transportation Study prepared by Barton-Aschman Associates, Inc (Oct. 1989) presents a forecast of travel demand for the year 2010. Table 9 displays the current and future socioeconomic data which includes housing, population, and employment. Table 10 lists existing and future travel demand. In this table, data are presented for the Los Angeles region as a whole, for greater Long Beach (including Lakewood & Signal Hill), and for the Long Beach Central Business District (CBD). Both daily and PM peak hour vehicle travel are listed. Regional data are examined because of the spill-over effects they have on the Long Beach street system.

It is projected that an additional 463,261 daily trips (35.5% increase over the base year of 1987) will use the Long Beach street network by 2010. In comparison with the region as a whole, travel demand in greater Long Beach is forecast to grow more slowly. However, it should be pointed out that vehicle trips related to the Long Beach Central Business District (CBD) are forecast to grow at a much more rapid rate, an increase of 170%. Such an increase is generated from future development in the downtown area.

Because downtown development will be composed of a mix of offices, retail shops, restaurants, hotels, theaters and other entertainment establishments, the travel demand in the future is anticipated to be spread more evenly over the day than at present. With increasing opportunities of night-life attractions in the downtown, it is anticipated that the pattern of high concentration of travel in the PM peak hour experienced today will be less pronounced.

To assess the impact of the future travel demand on the existing street network using the growth projections previously discussed, the computer model ran a scenario which reflects 2010 travel demand on the existing roadway system. The result shows widespread and severe congestion. The projected congestion is anticipated to affect not only all of major east-west arterials, but also a number of north-south arterials including streets east of Lakewood Boulevard. Figure 21 illustrates the specific roadway sections where severe capacity problems (LOS "E" and "F") will occur by the year 2010. This result demonstrates that if this region continues to grow as projected to 2010, the existing street network will not be able to accommodate additional traffic generated by that new growth. Most major arterials are expected to have a Level Of Service "E" or worse. The conflict between commute traffic and neighborhood tranquility will be even sharper. The next sections will assess these potential conflicts and evaluate alternative solutions.

TABLE 9
SUMMARY OF BASE YEAR AND FUTURE SOCIO-ECONOMIC DATA

1987 BASE YEAR DATA

AREA	SINGLE-FAMILY DWELLING UNITS	MULTI-FAMILY DWELLING UNITS	POPULATION	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT
LONG BEACH CBD	327	12,688	27,935	4,001	19,419
CITY OF LONG BEACH	84,631	80,915	395,770	29,890	192,881
LA COUNTY MINUS LONG BEACH	1,601,872	1,207,616	7,785,254	663,562	4,150,548
REGION MINUS LONG BEACH	2,756,856	1,802,213	12,552,527	1,063,559	6,243,604
TOTAL REGION	2,841,487	1,883,128	12,948,297	1,093,449	6,436,485

AVG EMPLOYMENT PER DU: LONG BEACH 1.17

2010 FORECAST DATA

AREA	SINGLE-FAMILY DWELLING UNITS	MULTI-FAMILY DWELLING UNITS	POPULATION	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT
LONG BEACH CBD	0	33,587	64,814	10,608	52,561
CITY OF LONG BEACH	89,932	112,576	491,086	43,854	284,114
LA COUNTY MINUS LONG BEACH	2,144,406	1,617,194	9,750,630	819,495	5,125,900
REGION MINUS LONG BEACH	4,228,296	2,628,707	17,193,630	1,478,683	8,505,000
TOTAL REGION	4,318,555	2,740,956	17,684,716	1,522,537	8,789,114

AVG EMPLOYMENT PER DU: LONG BEACH 1.40

Source: Barton-Aschman, Long Beach Transportation Study, Long Beach, 19

TABLE 9 - CONTINUED
SUMMARY OF BASE YEAR AND FUTURE SOCIO-ECONOMIC DATA

2010 FORECAST DATA -- PERCENT INCREASE VS 1987

AREA	SINGLE-FAMILY DWELLING UNIT	MULTI-FAMILY DWELLING UNIT	POPULATION	RETAIL EMPLOYMENT	TOTAL EMPLOYMENT
LONG BEACH CBD	0%	162%	132%	165%	171%
CITY OF LONG BEACH	7%	39%	24%	47%	47%
LA COUNTY MINUS LONG BEACH	34%	34%	25%	23%	23%
REGION MINUS L.B.	53%	46%	37%	39%	36%
TOTAL REGION	52%	46%	37%	39%	37%

Source: Barton-Aschman, Long Beach Transportation Study, Long Beach, 1989

TABLE 10
EXISTING AND FUTURE TRAVEL DEMAND BY CATEGORY

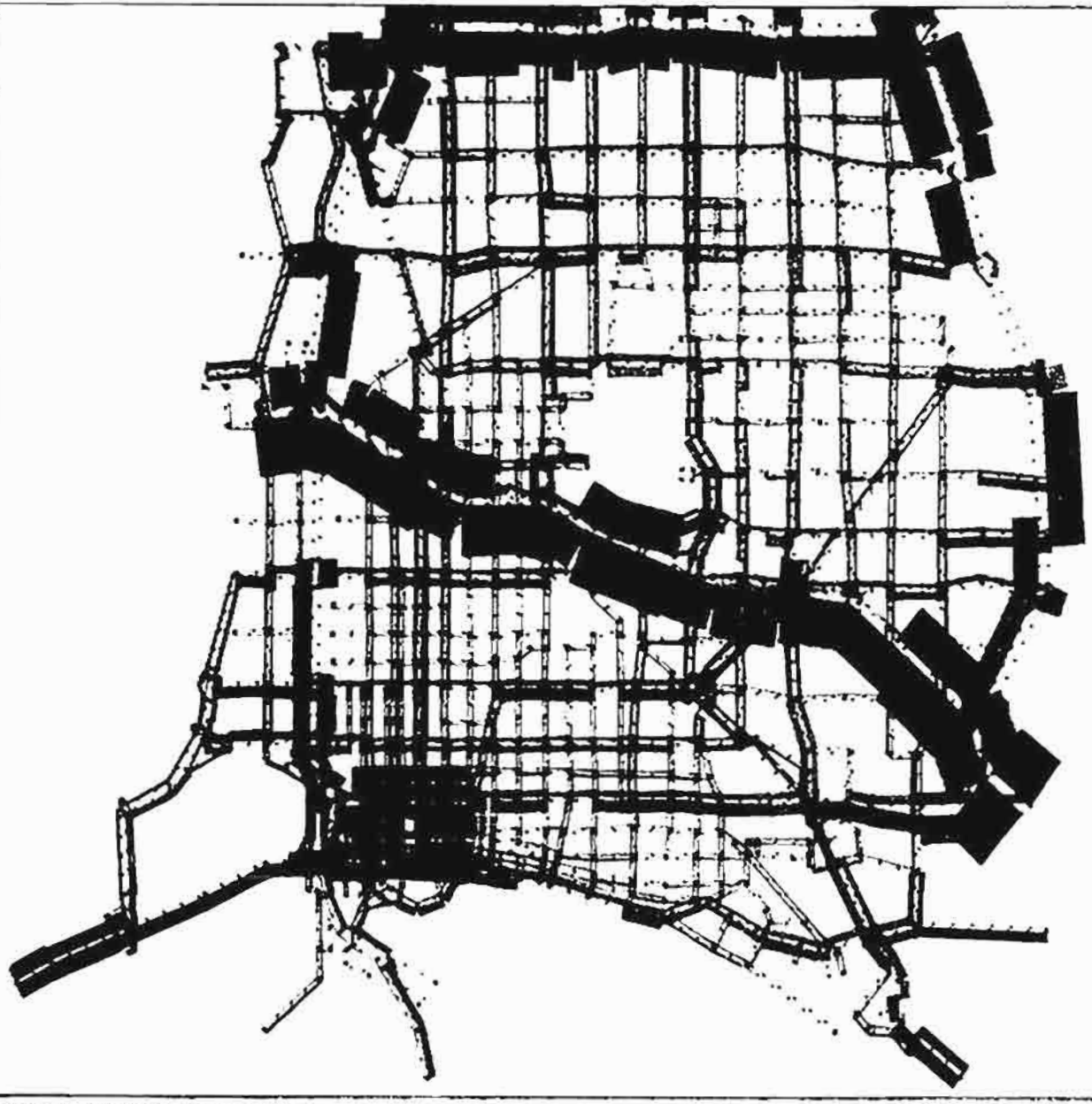
AREA/TRIP PURPOSE	1987 TRIPS DAILY VEHICLE	1987 TRIPS PM PK HR VEHICLE	2010 TRIPS DAILY VEHICLE	2010 TRIPS PM PK HR VEHICLE
LA REGION:				
HOME-BASED WORK	5,707,246	627,797	8,766,746	964,342
HOME-BASED OTHER	9,102,225	546,134	14,100,428	846,026
NON-HOME-BASED	5,596,445	503,680	8,600,447	774,040
ALL PURPOSES	20,405,916	1,677,611	31,467,621	2,584,408
Peak Hour Percentage -->		8.2%		8.2%
Percent Increase -->			54.2%	54.1%
GREATER LONG BEACH: (Includes Lakewood & Signal Hill)				
HOME-BASED WORK	401,557	44,171	561,086	61,719
HOME-BASED OTHER	556,797	33,408	710,474	42,628
NON-HOME-BASED	347,492	31,274	497,544	44,779
ALL PURPOSES	1,305,846	108,853	1,769,104	149,127
Peak Hour Percentage -->		8.3%		8.4%
Percent Increase -->			35.5%	37.0%
LONG BEACH CBD:				
HOME-BASED WORK	27,320	4,300	78,553	8,641
HOME-BASED OTHER	40,498	3,477	103,552	6,213
NON-HOME-BASED	34,402	4,430	93,786	8,441
ALL PURPOSES	102,220	12,207	275,891	23,295
Peak Hour Percentage -->		11.9%		8.4%
Percent Increase -->			169.9%	90.8%

SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

BASE NETWORK

USER DEFINED LINK DATA 3

emme/2



LINKS:
TYP=10.60
COL-IND: UL1
THRESHOLD:
LOWER: ======
UPPER: ======

Green
V/C < 0.9

Yellow
0.9 < V/C < 1.1

Red
V/C > 1.1

SCALE: 400
1000
2000
3000
4000
5000

WINDOW:
-1.261/-1.039
11.385/ 8.446

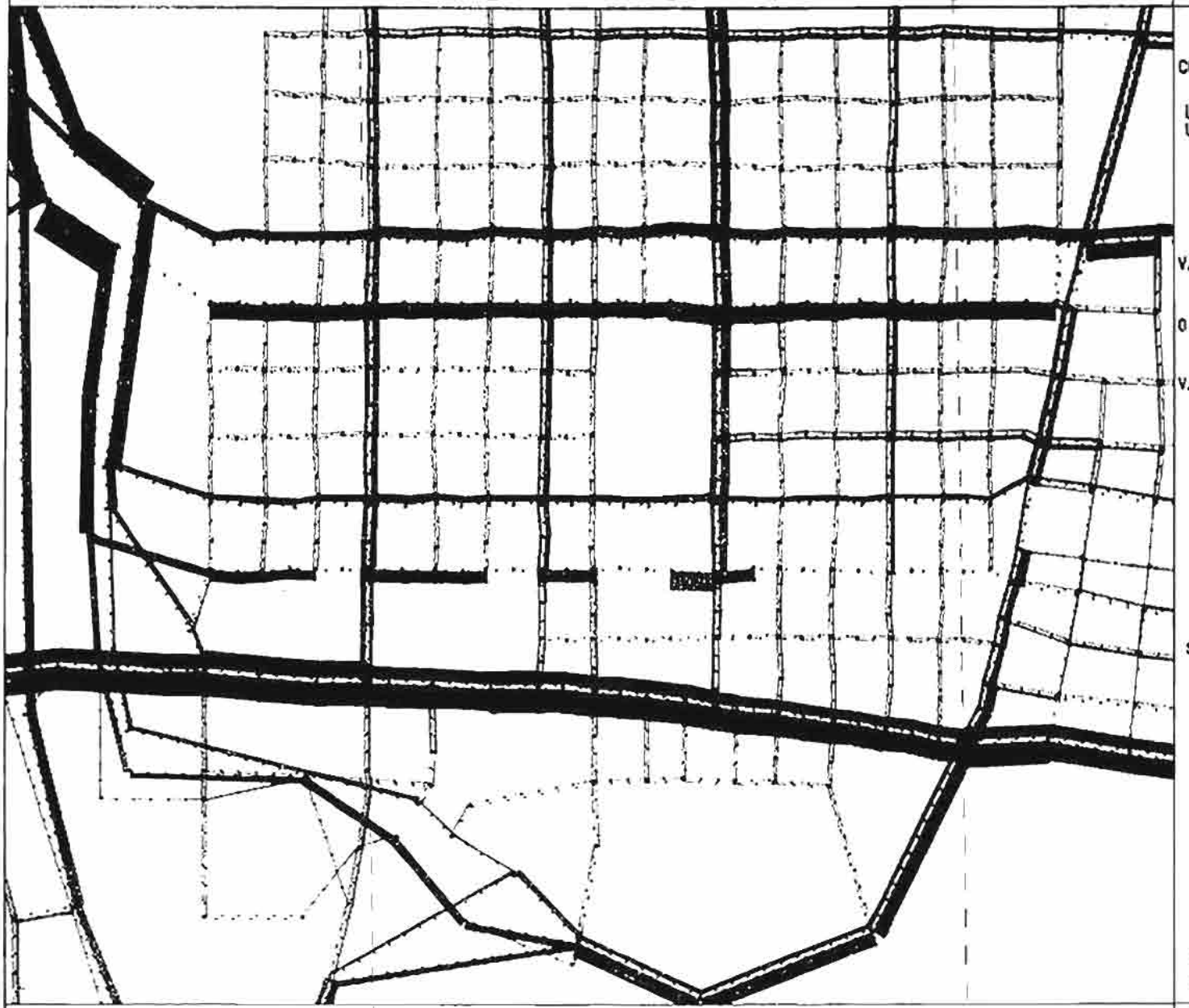
EMME/2 PROJECT: LONG BEACH
SCENARIO 52: 2010 LU/EXISTING NETWORK - VOLUME BY LOS RANGE

DATE: 90 06 25
MODULE: 2.13
LBDPW.....twl

2010 LAND USE - EXISTING NETWORK

FIGURE 21a

2010 LAND USE - EXISTING NETWORK



emme/2

LINKS:
TYP=10.60
COL-IND: UL1
THRESHOLD:
LOWER: ■■■■■■
UPPER: ■■■■■■

Green
V/C ≤ 0.9

Yellow
0.9 < V/C ≤ 1.1

Red
V/C > 1.1

SCALE: 200
500
1000
1500
2000
2500

WINDOW:
1.9475/ .6028
3.5962/1.8393

EMME/2 PROJECT: LONG BEACH
SCENARIO 52: 2010 LU/EXISTING NETWORK - VOLUME BY LOS RANGE

DATE: 90 06 25
MODULE: 2.13
LBDPW.....tul

FIGURE 21b

4.4 SUMMARY

1. Regional Concerns

   - The Southern California region will continue to grow despite decisions Long Beach may reach regarding future local growth. Some of this growth will impact Long Beach streets.

   - Regional growth in population and employment will cause significant increases in work trips which will increase travel times, decrease speeds, consume more fuel, and further degrade air quality.

   - The Regional Mobility Plan, intended to improve the negative factors cited above, is very complex and ambitious, requiring reorientation of personal driving habits, broad support of local governments, and significant financial support.

   - The South Coast Air Quality Management District has adopted rules and regulations which begin to address air quality improvement, and which will eventually affect all drivers.

2. Local Growth

   - Adopted City policy is for limited, managed population growth and considerable economic expansion.

   - Economic growth is directed to major activity centers, such as Downtown, the Port, and the Airport area. Population growth is directed primarily to downtown and along several major arterial corridors.

   - The City's balance between jobs and housing units is significantly below the County average. A major economic development goal is to increase the ratio by adding a greater number of jobs than housing units.

3. Future Transportation Demand

   - Daily trips on Long Beach streets are projected to increase 35.5% from 1987 to 2010.

   - Without corrective actions, these trip increases would produce widespread and severe congestion.

   - Computer simulation of a number of different approaches to the problem indicates that reasonable solutions are available.

4.5 RANGES OF ALTERNATIVE APPROACHES

Having defined the transportation goals and objectives, the next task is to develop a future transportation system which will be suitable to meet our future transportation needs. The range of alternative approaches can be wide, but basically, they fall into two fundamental categories: increasing supply; reducing demand. On the supply side, we can build new streets and widen existing ones, and we can use existing streets more efficiently to increase their carrying capacities. On the demand side, we can reduce vehicular trips in a given time period by increasing the number of riders per vehicle, by spreading out the peak period, and by shortening the travel distance. These various approaches in generic terms are summarized as follows:

Construction Alternatives

- o new streets and highways
- o widen streets
- o widen intersections
- o grade separations

The traditional approach to solving traffic congestion problems has been to construct more freeways and streets. But in an old, urbanized area, the opportunity for such new construction is limited due to physical constraints, limited funding source and environmental concerns. However, widening intersections and creating grade separations to relieve the bottlenecks may be feasible under certain conditions in an existing city.

Transportation System Management (TSM) Alternatives

- o removal of curbside parking
- o synchronization of traffic signals
- o prohibition of left turns
- o prohibition of cross traffic
- o reversible lanes
- o one-way pairs
- o unbalanced pairs

The TSM approach is to maximize the capacity of current street systems by using the street more efficiently. These techniques can be implemented in a short-term time period and are less capital intensive than new construction.

TSM has been employed during the past decade in many cities and has proved to be effective. A good example is the so-called "smart streets" in the City of Los Angeles during the 1984 Summer Olympics. A sophisticated traffic control center with computers to coordinate a grid system of signals successfully alleviated many of the expected traffic control problems.

Transportation Demand Management (TDM) Alternatives

- o carpool
- o vanpool
- o staggered work hours
- o compressed or staggered work week
- o telecommunication
- o truck travel and loading in off-peak periods
- o parking pricing and management to discourage work trips by single-occupant vehicles

TDM is used to manage the movement of people within the transportation system. This approach is intended to reduce the dependency on single-occupant vehicles and to shift the timing of travel to less congested time periods.

TDM is an effective approach for reducing peak hour traffic demand. By increasing commuter ridership from 1.2 to 1.5 passengers per vehicle, 25% of vehicular work trips can be eliminated. However, this approach requires commuters to alter their driving behaviors by choosing other transportation modes, and time periods. Studies and surveys suggest that travel costs and times are important factors which influence travel decision-making. Cities which have successful TDM programs have often implemented parking pricing programs, which place a premium on parking rates for long-term parking.

Transit and Other Mode Alternatives

- o bus/tram
- o jitney
- o light rail
- o heavy rail
- o commuter rail
- o monorail
- o people movers
- o water taxi and hydrofoil
- o park-and-ride
- o peripheral parking
- o bicycle
- o walking

Transit options provide opportunities to move the highest number of people with the smallest number of vehicles. However, the current transit system cannot compete with private automobiles in terms of efficiency and convenience. If people are to use the transit system, transit must go where the people want to go and when they want to go there. To make the transit system a viable option, it must be expanded and improved on a region-wide basis.

Land Use Policy Alternatives

- o jobs/housing balance

- o mixed use development
- o multi-purpose activity centers
- o high density along transit corridors
- o high density near work-places
- o limiting growth

Land use policy and the transportation system are interrelated with each other. To place housing close to an employment center can shorten some commuting trips. A mixed use development will also reduce the need to use private cars for midday errands if the needed services (such as bank, dry cleaning, restaurant, and postal services) are available at or closer to the work-places. A number of traffic studies also suggest people tend to use transit more often if they live closer to a transit stop.

4.6 COMPUTER MODEL RUN RESULTS

In order to determine which approaches will be most appropriate to meet our future traffic demands, the computer model was used to test the potential impacts of various modifications to the transportation system. The Transportation Study prepared by the traffic consultant, Barton-Aschman Associates, Inc., evaluated five future transportation scenarios.

A. 2010 projected land use with the existing roadway network (no improvements).

   The result indicated widespread and severe congestion both citywide and in the downtown.

B. No additional development within the City, and no transportation improvements, but including regional growth through 2010.

   Under this scenario, growth outside Long Beach still created widespread congestion within the City. This is because significant growth in the region will continue to generate certain additional volumes of traffic on city streets. The relatively uncongested streets within the city will become even more attractive for those commuters who seek alternatives to the congested freeway system. But there will be reduced financial capability to improve the roadway system because of the lack of development.

C. 2010 land use with roadway improvements recommended by Long Beach 2000: The Strategic Plan.

   The results revealed that, even with major improvements to the roadway network, many streets still will be operated with Level Of Service E or worse.

D. Scenario C plus 20% city work trip reduction through transportation demand management (TDM) programs.

The results suggested that many streets congested in Scenario C would operate at Level of Service (LOS) D or better except at a few locations.

E. Scenario C plus 30% city work trip reduction through TDM.

Under this scenario , nearly the entire city street network would be relatively uncongested (Level of Service D or better). It clearly showed the transportation demand programs could effectively reduce the severity of traffic congestion. To achieve a 30% trip reduction, however, is a very ambitious undertaking, involving significant changes in personal travel behavior.

In addition to these five scenarios, the Transportation Task Force suggested a number of different modifications to the recommended roadway improvements. These modifications fell basically into three categories:

- o modifications to parking restrictions;
- o changes to some of the street capacity assumptions;
- o testing of variations of the transportation demand management and transit assumptions.

A total of 11 additional scenarios were tested, as follows.

A-1 2010 projected land use with recommended roadway improvements, except curbside parking is not removed from Broadway and Third, east of Alamitos.

This model run shows that both Broadway and Third Streets will operate near their capacities. Additionally, the traffic congestion level on Seventh Street will increase slightly.

A-2 Model run A-1 plus parking to remain also along Fourth, Anaheim, and Atherton.

This alternative increases congestion on all east-west streets between Alamitos and Redondo.

B-1 2000 land use (50 % of the anticipated growth) on the existing roadway system.

This model run suggests that parking along all east-west streets east of downtown, with the exception of Seventh Street, does not need to be removed until 50% of the anticipated growth is reached. However, improvements to the

Traffic Circle and the Iron Triangle must be implemented in the near future.

B-2 2000 land use on future network with recommended roadway improvements.

This model run indicates that if all recommended improvements were made by the year 2000, the system would handle traffic with little or no congestion. However, funding limitations make this alternative very difficult to implement.

B-3 2010 land use with recommended roadway improvements, except no freeway improvements on any area freeways.

This model run proves that the Long Beach city street system is indeed an effective shortcut to avoid freeway congestion. Without additional lanes on freeways, through traffic will spill over to our city streets, resulting in severe congestion.

B-4 Same as model run B-3, except trucks would be prohibited from Long Beach Freeway (710 fwy).

Under this scenario the effect of the shift of trucks away from the Long Beach Freeway will relieve traffic on some north-south arterial streets in Long Beach.

B-5 2010 land use with full roadway improvements plus increased capacity in the Atherton corridor with extended connection to I-605 interchange.

This alternative will attract approximately 500 eastbound trips from Ocean Boulevard, Broadway, Third, Fourth and Seventh Streets to the PCH corridor.

B-6 2010 land use with the recommended roadway system, plus a set of committee recommendations which are meant primarily to eliminate parking on almost all major arterial streets, and to assume no freeway widening and no grade separation at Lakewood/Spring.

The results of this scenario are similar to the results of B-3. Without freeway widening most city streets will be congested.

C-1 2010 land use with full improvements with a 10% transportation demand management reduction in work trips.

This model run indicates that all east-west streets leaving downtown and streets in the vicinity of the airport will operate at the Level of Service E or worse.

C-2 2010 land use on the existing roadway system with a 40% transportation demand management reduction in work trips.

Trip reduction alone cannot alleviate congestion problems. This alternative suggests that all of the east-west streets east of downtown and all of the east-west streets north of the 405 Freeway will operate at the Level of Service D or worse.

C-3 2010 land use with roadway improvements plus a special transit corridor on Seventh Street.

This model run indicates that eastbound Seventh Street will be congested if one travel lane is devoted exclusively for transit use. Besides, this increased congestion in the Seventh Street Corridor will force traffic to Broadway, Third, Fourth and First Streets and Ocean Boulevard.

A copy of a complete description of these runs and their results can be found in Appendix C. In summary, the test results of these modifications suggest that:

- Widening the freeways by one lane in each direction over the next 20 years is crucial. Without these additional lanes, the model runs show significant congestion in Long Beach on virtually all of the major east-west corridors;

- The implementation of the majority of recommended roadway improvements will not be needed until 50 % of the projected growth is developed in the City. Since that 50% of the anticipated growth is estimated to be reached around the year 2000, it is reasonable to assume that the more costly projects and unpopular programs (such as parking removals) can be deferred until after the year 2000;

- The set goals cannot be achieved by a single solution. We must take a balanced approach. In order to adequately accommodate the projected growth in Long Beach and in this region, the City must make certain capital improvements to the street network and implement transportation demand management programs to reduce the dependency on single-occupant vehicles. The target should be 20% reduction of single-occupant vehicular work trips by 2010;

- Among all of the 11 runs, the PCH/Atherton connection with I-605 is the only alternative which shows positive impacts in trip shifting on major east-west streets south of Seventh Street. The test run indicates that improvements to the Atherton corridor can reduce traffic volumes by 808 trips on several east-west arterials to the south, including Ocean Boulevard, Broadway, Third, Fourth, and Seventh Streets.

However, the cost for this connection is estimated at over $3.5 million, which includes land acquisition and construction expenses. In addition to the construction cost, there are severe social and environmental impacts associated with the suggested connection that cannot be ignored. The increase in traffic volumes will be seen by the adjacent neighborhoods as an adverse impact causing noise, disruption, and safety problems. Vehicle speeds would probably increase. Because the impacts may out-weigh the benefits, this connection is determined to be not environmentally sound.

V. RECOMMENDATIONS

V. RECOMMENDATIONS

Although the growth forecast for Long Beach and the surrounding communities is substantial, evaluation of future scenarios as discussed in Chapter IV indicates that anticipated traffic problems can be managed, and our transportation system can play a supporting role in the City's future. This analysis, however, suggests that the set goals cannot be achieved by a single solution. To manage the increase of traffic without jeopardizing the quality of life in our residential community, we must:

1. Improve the transportation network by roadway improvements and efficient utilization of existing streets;

2. Reduce single-passenger automobile work trips by 20% within the next 20 years.

In order to achieve objectives 1 and 2, we must have a public/private partnership which is responsible for developing funding sources.

This policy plan is designed to establish an integrated transportation system in order to meet the following objectives:

1. Maintain traffic and transportation service level at Level of Service D or better;

2. Provide a transportation system that moves people and goods in an efficient and cost-effective manner;

3. Accommodate reasonable and balanced growth; and

4. Maintain or enhance our quality of life.

5.1 POLICY PLAN

The objectives and policies outlined below provide guidance in decisions related to traffic operations and roadway improvements, in determining the actions to implement demand-management programs, and in land use decisions.

This policy plan consists of eight interrelated components:

1. Regional Mobility Improvement and Coordination;

2. Functional Classification of Streets;

3. Roadway Improvement and Better Utilization of City Streets;

4. Transportation Demand Management;

5. Transit;

6. Bicycle and Pedestrian Movement;

7. Special Activity Centers - Downtown, Port, and Airport;

8. Neighborhood Traffic Management Programs and Citizen Participation.

5.1.1 Regional Mobility Improvement and Coordination

Objectives

- Increase freeway capacities to minimize use of City streets for through traffic
- Increase regional cooperation on transportation issues
- Reduce the percentage of truck traffic on the Long Beach (710) Freeway

Discussion

A. Regional Mobility Improvement

Studies by the City's transportation consultant demonstrate that, even without growth within Long Beach, regional growth by 2010 will cause unacceptable traffic congestion in the City of Long Beach. A predicted region-wide growth of 54% suggests that, unless the freeways which surround Long Beach have increased capacity, freeway travelers in increasing numbers will seek alternative routes through the community. In order to avoid this, lobbying at the state and national level for HOV lanes in each direction on the four principal freeways serving Long Beach is imperative.

B. Regional Cooperation

Local programs alone would be inadequate to prevent unacceptable congestion. Regional efforts by SCAG, Caltrans, Commuter Transportation Services, Inc., Southern California Rapid Transit District (RTD), Orange County Transit District (OCTD), other cities, and transportation-related associations need integration to fully realize the planned regional traffic improvements.

Inasmuch as traffic congestion problems do not stop at jurisdictional boundaries, all levels of government, including federal, state, counties, and local municipalities, must work

together to provide meaningful solutions to the problem perceived as number one by many residents in this region.

C. Truck Traffic on the 710 Freeway

As more downtown development is completed, and more port development occurs, the importance of the Long Beach Freeway for access to those two destinations becomes self-evident. However, the high percentage of truck traffic on the Long Beach Freeway is a deterrent to those wishing to visit and work downtown. Currently, about one-fourth of Long Beach Freeway traffic south of the San Diego Freeway is truck traffic. Therefore, priority must be given to the reduction of the percentage of truck traffic on the Long Beach Freeway, and to provide an effective alternate system to accommodate the anticipated growth in both ports.

To mitigate the traffic impact, the traffic study prepared for the Port 2020 Plan recommends improvement of the Alameda Consolidated Transportation Corridor (ACTC). As recommended, this corridor will provide a consolidated rail line for the three railroads serving the Ports, and provide a six-lane major thoroughfare for truck traffic. Support for the ACTC is part of the strategy to decrease truck traffic and congestion on the Long Beach Freeway.

Policies

Policy 1 - Use all means, formal and informal, to obtain priority and funding for widening of the 405, 605, 710, and 91 Freeways by adding HOV lanes (where they do not currently exist) in both directions, as soon as possible.

Policy 2 - Initiate and support efforts to coordinate capital improvements, transit services, and demand management programs with surrounding jurisdictions.

Policy 3 - Participate in and support ongoing efforts to form regional governmental and quasi-governmental agencies to administer and market regional solutions to transportation problems and educate the public on transportation issues and alternatives.

Policy 4 - Expedite public approvals, private cooperation funding, and construction of the Alameda Consolidated Transportation Corridor and related on-dock rail facilities in the port. This policy should be achieved by:

a. Building a public-private consensus for a coordinated approach to regional, state, and federal agencies for approvals and funding of the improvements;

b. Mobilizing and coordinating all political and administrative resources, formal and informal, to realize completion of the above improvements.

5.1.2. Functional Classification of Streets

Objectives

- Provide a street system which will attract and channel through-traffic and activity center traffic to preferred routes.
- Protect neighborhood livability by applying appropriate street design criteria to discourage through traffic and to minimize adverse traffic impacts on adjacent residences.
- Provide guidelines to integrate land use and transportation systems planning.
- Promote transit use and enhance pedestrian movement.
- Preserve scenic route quality.

Discussion

The functional classification policy is intended to provide guidelines on what kinds of traffic and transit use should be emphasized on each street, and how future street improvement projects and land use development relate to that street. Proper classification of streets can help to protect neighborhood liveability, to integrate land use and transportation policies, to promote transit use and development, to support increased pedestrian opportunities, and to provide adequate arterial street capacity.

Traditional street classification is based primarily on physical capacity, or the maximum number of vehicles which can be accommodated through the right-of-way. However, the functional classification of this Element also takes into account the "environmental capacity" of each street. Environmental capacity reflects the volume of traffic that can be accommodated without having a severe negative impact upon adjacent uses. As such, the environmental capacity of a street is often lower than its physical capacity. When traffic volumes exceed the physical capacity of a street, drivers complain. When traffic volumes exceed the environmental capacity, adjacent and neighboring property owners and residents complain.

Unfortunately, the pure application of environmental capacity theory is not always possible, particularly in older areas of the City where roadway widths are constrained and adjacent development is intense and close to the street. In such cases, priority is given to preserving the environment of Local Streets and Collector Streets by classifying other parallel roadways

(Principals and Major Arterials) above their environmental capacity. Each of these classifications includes statements outlining the functional purpose (primarily the kinds of trips to be served by each category of street), design and operational aspects, and descriptions of the kinds of land use and development to be encouraged along the various types of streets. These functional characteristics of each classification should guide decisions on alternative capital improvements and/or operational modifications on each street.

Table 11 summarizes the major characteristics of each category of streets in a matrix form for easy reference. In the matrix, appropriate characteristics for each category of street are marked by "x". However, it should be pointed out that the absence of an "x" is more significant than the presence of one. For instance, regional traffic should never use a local street (absence of an "x"), and a truck route should not be designated on a collector street. Furthermore, the presence of an "x" should not be interpreted to mean that the characteristic must be present on the street. For instance, a truck route may be designated on a major arterial (presence of an "x"), but a major arterial does not always have to be a truck route. With regard to compatible land use, the presence of an "x" does not mean that the entire length of the street in question should be lined with such a use. Rather, uses are expected to change as one proceeds along a street, as recommended in the Land Use Element of the General Plan.

I. CLASSIFICATION

A. FREEWAY

1. Functional Purpose

   - o A Freeway is intended to provide for inter- and intra-regional movement.
   - o A Freeway should provide for the highest capacity and express movement of regional trips.

2. Land Use and Development

   - o Any new development adjacent to a freeway should take into account inevitable impacts generated from the freeway, such as noise and air pollution.

3. Design Treatment and Traffic Operations

   - o The minimum traffic volume capacity should be over 100,000 ADT (Average daily trips).

TABLE 11

FUNCTIONAL CLASSIFICATION OF STREETS

MAJOR CHARACTERISTICS MATRIX

	FREEWAY	REGIONAL CORRIDOR	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR STREET	LOCAL STREET
Functional Purpose						
Regional traffic (travel between subregions)	X	X				
Sub-regional traffic (travel within L.B. subregion)		X	X			
City traffic (travel between neighborhoods/activity centers)			X	X		
Neighborhood traffic (link between local streets and major traffic carriers)					X	
Local traffic (trip end on street or on connecting local street)						X
Design Criteria						
Right-of-way width	150'+	100'	100'(1,2)	80'(1)	60'	56'
Roadway Width	100'+	84'	80'(1,2)	54'-60'	40'	36'-40'
Intended daily traffic volumes (environmental capacity)	100,000+	36,000	30,000+	12,000-30,000	5,000-20,000	Less than 5,000
Access to abutting properties						
No access	X					
Limited access		X	X			
Regular access				X	X	X
Intersection Treatment Preference						
Freeway	GS	GS	GS			
Regional Corridor	GS	GS	MI	MI	SI	LA
Major Arterial	GS	MI	MI	SI	SI	LA
Minor Arterial		MI	SI	SI	SI	2S
Collector Street		SI	SI	SI	4S	2S
Local Street		LA	LA	2S	2S	
Special Landscape Treatment	X	X	X			
City Entrance Improvements	X	X	X			
Possible Traffic Operations						
Connection to freeway system	X	X	X			
Truck Route	X	X	X			
HOV Lane	X	X	X			
TSM (i.e. Parking restriction, Synchronization of signals)		X	X			
Scenic Route(2)		X	X			

KEY TO INTERSECTION TREATMENT PREFERENCES

GS - grade separation
MI - major intersection
SI - signalized intersection
4S - four-way stop signs
2S - two-way stop signs
LA - limited access where possible (no cross traffic, right turn only, etc.)

TABLE 11

FUNCTIONAL CLASSIFICATION OF STREETS

MAJOR CHARACTERISTICS MATRIX

(Continued)

	FREEWAY	REGIONAL CORRIDOR	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR STREET	LOCAL STREET
Possible Transit Operations						
Primary Transit Corridor (3)		X	X			
High-Frequency Local Transit			X	X		
Low-Frequency Local Transit				X	X	X
Bus Lane/Warranted Bus Bays		X	X			
Compatible Land Use						
Major Activity Center		X	X			
Auto-oriented Commercial strips			X	X		
High-density residential (Vary with transit capacity)		X	X	X		
Community Activity Center			X	X		
Neighborhood serving retail nodes					X	X
Low-density residential				X	X	X

Footnotes

(1) Special width requirement shall apply to the following arterials:

a) One-way major arterials shall have a right-of-way width of 80' with a roadway width of 56'.

b) Boulevards, including Long Beach Boulevard, Alamitos Avenue and Ocean Blvd. west of Alamitos shall have a right-of-way width of 106' or more to provide for landscaped medians.

c) Redondo Ave. between Broadway and Pacific Coast Highway shall maintain a right-of-way width of 80'.

d) Anaheim Street, east of Pacific Avenue, shall maintain a right-of-way width of 80'.

e) The following older urban principal streets shall maintain a right-of-way width of 70':
- Broadway, Fourth Street, and Tenth Street.

(2) This Element recommends a scenic route along the Ocean/Livingston Drive/Second Street corridor. The existing roadway width (an average of 60' except a few locations where the width exceeds 60') shall not be changed in order to maintain wide parking and landscape medians (see special design treatment on page 102).

(3) This Element recommends primary Transit Corridors on the entire Light Rail Transit route in Long Beach (including portions of Long Beach Blvd.) and on Seventh Street. Both Long Beach Blvd. and Seventh Street are Major Arterials. Such a dual designation of a corridor does not imply priority for either mode over the other. Rather, a reasonable balance must be achieved between auto use and transit use based upon the principle of optimum movement of persons (See special design treatment on page 103).

- Design treatment and traffic operations shall be in accordance with the specifications as required by CALTRANS.

- Excessive freeway ramps should be discouraged to minimize disruption of through traffic movement and unwanted impacts on local streets.

B. REGIONAL CORRIDOR

1. Functional Purpose

- A Regional Corridor is intended to provide for intra-regional and inter-community movement.

- Relative to other rights-of-way (excluding the freeway system), a Regional Corridor should provide the highest capacity and express movement of longer distance trips.

2. Land Use and Development

- Private and public developments of regional significance (i.e. a regional shopping center, a major employment center, etc.) should be encouraged to locate adjacent to Regional Corridors to reduce traffic impact of such uses upon adjoining areas and streets with lower functional classifications.

- Large scale, auto-oriented commercial uses which attract trips from throughout the City should be encouraged to locate along Regional Corridors, provided they do not interfere with the traffic function of the corridor and conform to the Land Use Element.

3. Design Treatment and Traffic Operations

- The minimum street capacity should be 30,000-50,000 ADT (Average daily trips).

- Design treatment and traffic operations on a Regional Corridor should encourage through movement.

- A grade separation may be required at the intersection between a Regional Corridor and another Regional Corridor or a Major Arterial to facilitate through traffic on a Regional Corridor.

- The intersection between a Regional Corridor and a Major Arterial should provide signal control for

all desired turning movements including an exclusive left-turn phase.

- A Regional Corridor is intended to provide for the movement of massive amounts of traffic throughout the City; thus, access to adjoining land uses should be controlled to minimize disruption of traffic movement.

- The adjacent land uses should provide adequate off-street parking to minimize dependency on curb-side parking.

- Transportation system management techniques may be required in the future, such as curb-side parking restrictions and synchronization of signals to increase traffic capacity.

- Wherever justified by demands, a bus lane should be provided along a Regional Corridor to optimize movement of persons. Bus pull-out bays should be provided, where warranted, where projected use of the bus bay can be demonstrated to have a positive effect on transit operations while reducing total person-delay in the corridor.

- A Regional Corridor should serve as a regional transit route. For transit to best serve the needs of City residents and reduce the impacts of travel on neighborhoods, the regional transit system should be designed to serve as an alternate to the automobile system. Such a system will require the integration of convenient inter-regional bus routes which are supported by high-quality local service.

- A Regional Corridor should generally serve as a truck route.

- A comprehensive landscape treatment should be provided along Regional Corridors, especially at city entrances.

C. MAJOR ARTERIAL

1. Functional Purpose

- A Major Arterial, having less traffic capacity than a Regional Corridor, is intended to serve as the major route for the movement of traffic within the City and for connecting with neighboring cities.

- A Major Arterial should serve major activity centers.

2. Land Use and Development

   - Major office or commercial developments which attract trips from various neighborhoods throughout the City should be encouraged to locate along Major Arterials.

   - Certain auto-oriented commercial uses should be encouraged to locate along Major Arterials, providing they do not interfere with the traffic function of the arterial, and conform to the Land Use Element.

   - High-density residential developments should be encouraged to locate along Major Arterials, especially in areas within 1/4 mile of transit stations, to maximize the usage of transit systems.

3. Design Treatment

   - The minimum street capacity should be 30,000 ADT.

   - Design treatment and traffic operation on a Major Arterial should give preference to traffic having at least one trip end within the City, rather than to through traffic.

   - A Major Arterial is intended to provide for the movement of traffic throughout the City; thus, access to adjoining land uses should be limited to minimize disruption of traffic movement.

   - The adjacent land use should provide adequate off-street parking to minimize dependency on curb-side parking.

   - Transportation system management techniques may be required in the future, such as curb-side parking restrictions and synchronization of signals to increase traffic capacity.

   - Intersections between Major Arterials should provide signal control for all desired turning movements, including an exclusive left-turn phase.

   - A Major Arterial should serve as an inter-city transit route and a major local transit route within the City.

- Wherever justified by demands, a bus lane should be provided along a Major Arterial to optimize movement of persons. Bus pull-out bays should be provided, where warranted and, where projected use of the bus bay can be demonstrated to have a positive effect on transit operations while reducing total person delay in the corridor.

- Transit oriented land use development located along a Major Arterial should be encouraged to provide good pedestrian access between transit stops and such developments.

- A Major Arterial may serve as a truck route.

- Certain Major Arterials should be designed as Boulevards with large street trees and landscaped medians. In such cases, adequate width of right-of-way will be required to provide for a grand scale and lush landscaping.

D. MINOR ARTERIAL

1. Functional Purpose

- A Minor Arterial is intended to provide for the movement of traffic to neighborhood activity centers, and to serve trips between neighborhoods.

- A Minor Arterial should serve as a distributor of traffic from a Major Arterial to a Collector Street and to Local Streets.

2. Land Use and Development

- Neighborhood-serving commercial developments are encouraged to locate along a Minor Arterial, as allowed by the Land Use Element.

- The density of residential developments along a Minor Arterial should be encouraged to vary directly with the capacity of transit service available, and as governed by the Land Use Element. High densities should be permitted within walking distance of major transit stops.

3. Design Treatment and Traffic Operations

- The street capacity should range from 12,000 to 30,000 ADT.

- Design treatment and traffic operations on a Minor Arterial should give preference to local traffic rather than to through traffic.

- A Minor Arterial should not be designated as a truck route.

- Intersections between Minor Arterials should be signalized to facilitate the safe movement of traffic along each street as well as turning movements between such streets.

- Special care should be taken in the design of intersections to provide safe and frequent pedestrian crossing opportunities.

- Transit-oriented land use development located along a Minor Arterial should be encouraged to provide good pedestrian access between transit stops and such developments.

- A Minor Arterial should serve as a local-service transit route.

- Planting of street trees should represent a continuous and comprehensive landscape treatment of these streets.

E. COLLECTOR STREET

1. Functional Purpose

- A Collector Street is to serve trips generated by the surrounding or adjacent neighborhood. Through trips with no trip ends within the neighborhood should be discouraged on a Collector Street.

- A Collector Street is intended to serve as a link between local streets and major traffic carriers.

2. Land Use and Development

- Land uses which attract a significant volume of traffic from outside of the neighborhood should be discouraged along a Collector Street.

- Pedestrian-oriented retail uses should be encouraged, in conformance with the Land Use Element.

- o Neighborhood serving commercial nodes are permitted along a Collector Street as governed by Land Use Element and Zoning.

3. Design Treatment and Traffic Operations

- o The street capacity should range from 5,000 to 20,000 ADT.
- o A Collector Street should not be designated as a truck route.
- o A Collector Street should provide connection to a Minor Arterial or to a Major Arterial. Through traffic should be discouraged on a Collector Street.
- o Traffic movement and access to abutting properties are equally important functions of a Collector Street. Therefore, parking removal or additional street widening should be undertaken only at specific problem locations or under special circumstances.
- o Special care should be taken in the design of intersections to provide safe and frequent pedestrian crossing opportunities.
- o An environment conducive to pedestrian activities should be encouraged along a Collector Street. This environment can include wider sidewalks, and landscaped parkways.

F. LOCAL STREET

1. Functional Purpose

- o A Local Street is intended to provide access to the adjacent properties. Traffic on a Local Street should have a trip end on that street, or on a connecting local street, or to a collector.

2. Land Use and Development

- o Land uses which attract a significant volume of traffic from outside of the neighborhood should be discouraged along a Local Street.
- o Low density and low intensity of land uses should be encouraged along a Local Street.

3. Design Treatment and Traffic Operations

- The street capacity should be less-than 5,000 ADT. However, most local streets will actually carry fewer than 1,000 ADT.

- A Local Street should not be designated as a truck route.

- A Local Street should provide connection to a Collector Street or a Minor Arterial. Through traffic should be discouraged on a Local Street.

- Intersection of Local Streets with Regional Corridors and Major Arterials should be discouraged. Local Streets can actually be terminated in a cul-de-sac at such major streets, or be limited to right turns only with no opportunities to cross the major street and interrupt its traffic flow.

- Access to abutting properties is the primary function of a Local Street. Therefore, parking removal or additional street widening should not be permitted unless it is for safety reasons.

- Special care should be taken in the design of a Local Street and intersections to provide safe and frequent pedestrian crossing opportunities.

II. SPECIAL STREET FUNCTIONS

A. SCENIC ROUTE

This Element recommends a scenic route along the Ocean Boulevard/Livingston Drive/Second Street Corridor. This recommendation is consistent with the recommendations of the adopted Scenic Routes Element of the General Plan and the certified Local Coastal Program. The Ocean Boulevard Scenic Route serves as access to the beach and to downtown.

1. Land Use and Development

- Land uses along this scenic route must be consistent with the land use policies guided by the certified Local Coastal Program.

2. Design Treatment and Traffic Operations

- The existing right-of-way of this corridor ranges from 80' to 114'. This existing right-of-way should not be widened unless necessary for

landscaping or other purposes to improve the scenic quality of the route. All existing street trees, landscaping, and parkways should be preserved.

- East of Alamitos Avenue, the existing roadway pavement should not be widened so as to increase the capacity of the street, and the existing curb-side parking should not be eliminated unless necessary for safety reasons. The existing roadway width, which varies in several segments, should not be increased.

- Increased transit service along this corridor to enhance shoreline access should be encouraged.

B. PRIMARY TRANSIT CORRIDOR

A Primary Transit Corridor is intended to provide for movement of persons via transit modes such as rail and express or limited-stop bus services, and via high occupancy vehicles. This Corridor should provide convenient connections with major sub-regional centers and major activity centers in the City.

This Element recommends Primary Transit Corridors on the entire Light Rail Transit route in Long Beach (including portions of Long Beach Boulevard), and on Seventh Street. Both Long Beach Boulevard and Seventh Street are Major Arterials. Such a dual designation of a corridor does not imply priority for either mode over the other. Rather, a reasonable balance must be achieved between auto use and transit use based upon the principle of optimum movement of persons.

1. Land Use and Development

   - High-density residential developments should be encouraged to locate within walking distance of major transit stations or stops.

   - Mixed-use developments should be encouraged at or near major regional transit stations.

2. Design Treatment

   - Major transit stations or stops should provide a safe and convenient waiting areas.

   - Major transit stations or stops should provide convenient means of transfer to other regional or local transit services.

- Transit route information should be provided at major transit stations or stops.

- Adequate pedestrian walkways should be furnished in order to provide a comfortable, safe, pleasant and convenient environment for walking from transit stops to adjacent land uses.

Policies

Policy 1 - Reclassify selected streets to channel the through traffic to preferred routes and protect neighborhood streets from through traffic (See Figure 22). Necessary dedication or reservation for widening of the public rights-of-way to the standards shall be provided in accordance with the Zoning Code. Special width requirement shall apply to the following arterials, except that additional width may be required at key intersections:

a) One-way major arterials shall have a right-of-way width of 80' with a roadway width of 56';

b) Boulevards, including Long Beach Boulevard, Alamitos Avenue and Ocean Boulevard west of Alamitos shall have a right-of-way width of 106' or more to provide for landscaped medians;

c) Redondo Avenue between Broadway and Pacific Coast Highway shall maintain a right-of-way width of 80';

d) Anaheim Street, east of Pacific Avenue, shall maintain a right-of-way width of 80';

e) The following older urban principal streets shall maintain a right-of-way width of 70': Broadway, Fourth Street, and Tenth Street.

Policy 2 - Undertake engineering studies (with guidance from the Neighborhood and Historic Preservation Officer for consideration of older neighborhood infrastructures independent of design criteria) for all classified streets, beginning with all designated major and minor arterials and their key intersections, which will be used to require dedication for street purposes when private properties are developed.

Policy 3 - Revise the truck route system to preserve the integrity of neighborhoods while assuring the efficient movement of goods (See Figure 23).

Policy 4 - Install clear, consistent, and distinctive signage which will direct vehicles via preferred routes to and from downtown, the freeways, and activity centers throughout the City.

Policy 5 - Apply a strict set of design criteria to future improvements which assure aesthetic appeal to users and residents, such criteria to include underground utilities and landscaping where appropriate.

Policy 6 - Encourage development along regional corridors and major arterials and at activity centers which complements capacity improvements and/or encourages demand management activities.

Policy 7 - Apply appropriate design treatments and traffic operations to all City streets in accordance with their street classifications.

Policy 8 - Apply appropriate design treatments and traffic operations to minimize traffic noise impact on adjacent residences, and enhance safety concerns.

Policy 9 - Improve the aesthetic quality of major thoroughfares, especially at entrances to the City.

FIGURE 22

LEGEND:

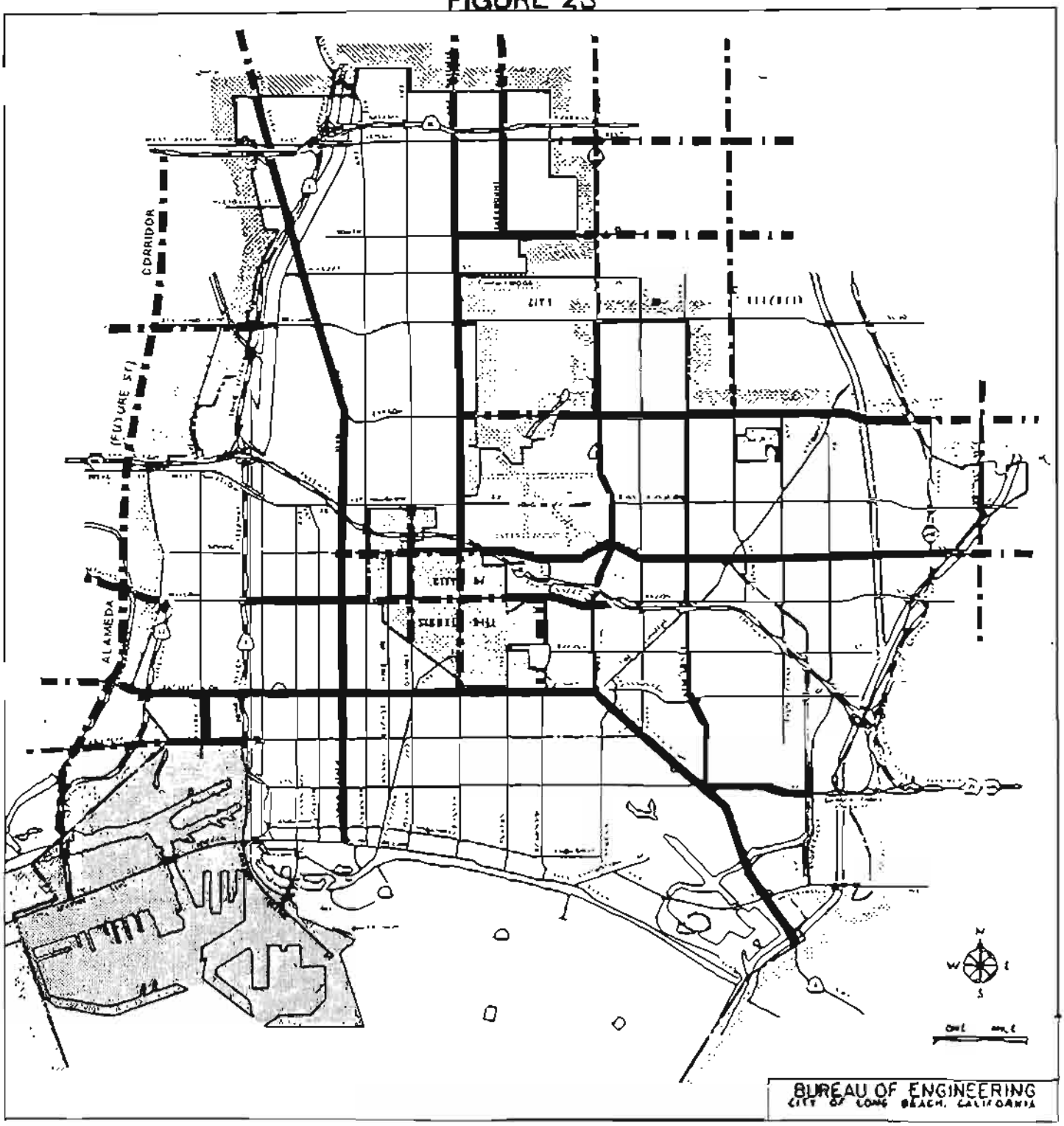
- FREEWAY
- REGIONAL CORRIDOR
- MAJOR ARTERIAL
- MINOR ARTERIAL
- COLLECTOR STREET
- ALL OTHER STREETS NOT SHOWN — LOCAL STREET

SPECIAL STREET FUNCTIONS:

- ····· PRIMARY TRANSIT CORRIDOR
- ▪▪▪▪▪▪ SCENIC ROUTE

FUNCTIONAL CLASSIFICATION OF STREET

FIGURE 23



LEGEND

CITY ORDINANCE

OTHER CITIES

HARBOR DISTRICT

(PROPOSED) TRUCK ROUTES CITY OF LONG BEACH, CALIFORNIA

5.1.3. Roadway Improvements and Better Utilization of City Streets

Objective

- Increase street capacity of regional corridors and major arterials to meet future traffic demand.
- Maintain Level of Service D or better on all streets and at all intersections.
- Increase efficiency of operation of regional corridors, and major and minor arterials.

Discussion

When freeways or major arterials become congested, commuters tend to use local streets as alternative routes. As a result of both regional and Long Beach growth, this problem will become worse unless specific steps are taken to ensure that through traffic chooses routes designed for that purpose.

Functional classification of streets is the first step to channel volumes of traffic to certain designated arterials. To actually attract the traffic to preferred routes, however, these streets must be designed with adequate capacity so that they can accommodate the traffic and maintain a smooth flow. Therefore, certain preferred routes, as designated, must have the following improvements.

1. Grade separations.

   Given predicted traffic growth, grade separations appear to be necessary at the following locations (the order of listed locations represents geographic locations from south to north):

   - Ocean Blvd./Alamitos Avenue
   - Iron Triangle (7th Street, Pacific Coast Highway, and Bellflower Blvd.)
   - Traffic Circle
   - Spring Street at Lakewood Blvd.

   Construction of grade separations at these locations will attract traffic to these preferred routes, particularly at peak periods.

2. Optimization of arterial street capacity.

   Capacity of specific regional corridors and arterials should be increased to ensure smooth traffic flow and to attract traffic to these preferred routes. This can be accomplished with signal synchronization, reversible

lanes, closure of certain intersecting local streets, and strategically prohibiting left turns during peak periods. Tables 12 & 13 indicate specific recommended changes for both east-west and north-south thoroughfares.

3. Elimination of street parking, especially during the peak hours.

   Curb-side parking can impede traffic flow. Additionally, replacing a parking lane by a travel lane can increase street capacity without widening the existing street. Therefore, selective parking prohibitions may be necessary to avoid unacceptable traffic congestion.

   Many existing commercial uses rely on curb-side parking. Thus, parking restrictions on streets may interfere with business. The interests of retail firms must be balanced with the need for efficient traffic movement. If conflicts are unavoidable, mitigation measures should be considered wherever possible. This plan recommends that each specific parking prohibition should be adopted only after: (1) completion of a traffic operations report, which examines traffic congestion problems, alternative solutions, other available parking, and other traffic operation details, and which results in a recommended plan of action to the City Council; and (2) action by the City Council approving such a plan after reasonable notice to residents, landowners, businesses, and an opportunity for such individuals or groups to be heard at a public hearing; and (3) completion of the neighborhood traffic mitigation and parking management program for those neighborhoods which may be directly affected by removal of parking. Tables 12 and 13 indicate those streets where parking restrictions may be necessary.

4. Minimizing unnecessary cross-traffic conflicts along regional corridors and major arterials.

   Excessive numbers of intersections on major thoroughfares reduce the average speed of traffic and encourage use of local streets for through traffic. Intersections with local streets should be eliminated where possible to reduce accidents and to speed the flow of traffic on the arterials which are intended to carry the bulk of inter-district traffic. Curb cuts for property access should also be minimized on regional corridors and major arterials; property access should be provided primarily from side streets, alleys, or service roads.

TABLE 12
RECOMMENDED CHANGES FOR EAST/WEST THOROUGHFARES

STREET NAME	Classification	Parking (1) Prohibition	Widening	New Roadways	New Ramps	Grade Separations
Shoreline Dr.	Changing from Major HWY to Regional Corridor			X	Ocean/ Alamitos	
Seaside Way	Changing from Local Street to Minor Arterial					
Ocean Blvd.	Changing from Major HWY to Regional Corridor - W. of 710; Minor Arterial - E. of 710 to W. of Livingston Dr.; Local Street E. of Livingston Dr.; Scenic Route E. of L.A. River to W. of Livingston	W. of Alamitos				Ocean/ Alamitos
Livingston	Changing from Major HWY to Minor Arterial- Ocean Boulevard to 2nd Street					
2nd St.	Local Street - W. of Livingston; Changing from Major HWY to Minor Arterial - E. of Livingston					
Broadway	Changing from Secondary HWY to Major Arterial - W. of Alamitos; Minor Arterial-Alamitos to Redondo; Collector St. - E. of Redondo	W. of Alamitos				
3rd St.	Changing from Secondary HWY to Major Arterial - W. of Alamitos; Collector St. - E. of Alamitos	W. of Alamitos				
Eliot St.	Collector Street (street was constructed after 1980)					
Loynes Dr.	Collector Street (No change)					

(1) Removal of parking shall be implemented in accordance with the policy statements listed in Section 5.1.3. of the Transportation Element.

TABLE 12 - CONTINUED
RECOMMENDED CHANGES FOR EAST/WEST THOROUGHFARES

STREET NAME	Classification	Parking (1) Prohibition	Widening	New Roadways	New Ramps	Grade Separation
6th St.	Changing from Local Street to Major Arterial - W. of Alamitos; Local St - E. of Alamitos	W. of Alamitos			X	
7th St.	Changing from Major HWY to Major Arterial and Primary Transit Corridor - entire street	entire st.	San Gabriel/ Cerritos Channel Bridges		X	Iron Triangle
8th St.	Transit Corridor - Pacific to Long Beach Blvd.; Local St. - The remainder of Street					
9th St. (W. of 710)	Major Arterial (No Change)			W. of 710		
10th St.	Changing from Minor HWY to Minor Arterial - W. of Redondo; Collector St - E. of Redondo					
Anaheim St.	Changing from Secondary HWY to Major Arterial	entire st.				
Pacific Coast HWY	Changing from Major HWY to Regional Corridor	entire st.			Traffic Circle, Iron Triangle	
Atherton	Minor Arterial (No change)					
Stearns	Collector St. - Redondo to Clark; Minor Arterial - E. of Clark (No change)					
Hill St.	Changing from Minor HWY to Local Street - W. of 710 FWY; Collector St. - Magnolia to Cherry					

(1) Removal of parking shall be implemented in accordance with the policy statements listed in Section 5.1.3. of the Transportation Element.

TABLE 12 - CONTINUED
RECOMMENDED CHANGES FOR EAST/WEST THOROUGHFARES

STREET NAME	Classification	Parking (1) Prohibition	Widening	New Roadways	New Ramps	Grade Separation
Willow St.	Major Arterial (No change)	entire st.				
Spring St.	Changing from Secondary Highway to Major Arterial E. of L. B. Blvd.; Minor Arterial - Pacific to L.B. Blvd.; & Collector St. - Pacific to Magnolia St.		L.B. Blvd. to Cherry			Lakewood Blvd.
Wardlow Rd.	Major Arterial - W. of L.B. Blvd.; Minor Arterial - E. of L.B. Blvd. (No change)					
Bixby Rd.	Changing from Minor Highway to Local Street					
Carson St.	Changing from Secondary HWY to Local Street - L.B. Blvd. to Atlantic Ave.; Major Arterial - E. of Atlantic Ave. (No change)					
Del Amo Blvd.	Major Arterial (No change)					
Market St.	Minor Arterial (No change)					
South St.	Changing from Secondary Highway to Major Arterial - E. of Cherry; Minor Arterial - Atlantic to Cherry; & Local Street - W. of Atlantic					
Victoria St.	Changing from Local Street to Minor Arterial					
Harding St.	Collector Street (No change)					
Artesia Blvd.	Major Arterial (No Change)					
70th St.	Changing from Secondary Highway to Collector Street					

(1) Removal of parking shall be implemented in accordance with the policy statements listed in Section 5.1.3. of the Transportation Element.

TABLE 13
RECOMMENDED CHANGES FOR NORTH/SOUTH THOROUGHFARES

STREET NAME	Classification	Parking (1) Prohibition	Widening	New Roadways	New Ramps	Grade Separations
Santa Fe Ave.	Major Arterial (No change)					
DeForest Ave.	Changing from Local Street to Minor Arterial - Anaheim to 7th St.			Shoemaker Bridge to Anaheim	X	
Magnolia Ave.	Changing from Secondary Highway to Major Arterial - S. of 3rd St.; Minor Arterial - 3rd to PCH; & Collector St. - N. of PCH		Ocean to PCH			
Pacific Ave.	Changing from Major Highway to Major Arterial - S. of PCH; & Minor Arterial - N. of PCH					
Dairy Ave.	Changing from Minor HWY to Local Street					
Long Beach Blvd.	Major Arterial (No change) Transit Corridor (Light Rail Line)					
San Antonio Dr.	Minor Arterial (No change)					
Atlantic Ave.	Changing from Secondary Hwy to Major Arterial	Ocean to 10th	10th to PCH			
M. L. King Jr.	Changing from Local Street to Collector Street					
Alamitos Ave.	Changing from Major Highway to Regional Corridor - S. of PCH	S. of PCH	S. of PCH			Ocean Blvd.
Orange Ave.	Changing from Secondary Highway to Collector Street - S. of PCH & N. of Wardlow; Major Arterial - PCH to Spring; & Principal St. - Spring to Wardlow					

(1) Removal of parking shall be implemented in accordance with the policy statements listed in Section 5.1.3. of the Transportation Element.

TABLE 13 - CONTINUED
RECOMMENDED CHANGES FOR NORTH/SOUTH THOROUGHFARES

STREET NAME	Classification	Parking (1) Prohibition	Widening	New Roadways	New Ramps	Grade Separations
Walnut Ave.	Changing from Local Street to Collector Street					
Cherry Ave.	Major Arterial - N. of Spring St. (No Change); Minor Arterial - PCH to 7th St; Collector St. - S. of 7th St.	Spring to Carson				
Junipero Ave.	Changing from Minor Highway to Local Street					
Temple Ave.	Collector Street (No change)					
Obispo Avenue	Changing from Local Street to Collector Street - N. of PCH					
Redondo Ave.	Changing from Secondary Highway to Major Arterial - N. of Broadway; & Collector St. - S. of Broadway					
Termino Ave.	Changing from Local Street to Collector St - N. of 3rd; Local Street - S. of 3rd.					
Lakewood Blvd.	Changing from Major High - way to Regional Corridor		Spring to Conant			Spring St.
Ximeno	Minor Arterial - Anaheim to Los Coyotes; Collector Street - S. of Anaheim (No change)					
Park Ave.	Collector Street (No. change)					

(1) Removal of parking shall be implemented in accordance with the policy statements listed in Section 5.1.3. of the Transportation Element.

TABLE 13 - CONTINUED
RECOMMENDED CHANGES FOR NORTH/SOUTH THOROUGHFARES

STREET NAME	Classification	Parking (1) Prohibition	Widening	New Roadways	New Ramps	Grade Separations
Clark Avenue	Changing from Secondary HWY to Minor Arterial - S. of Carson; & Collector Street - N. of Carson	Willow to 300' N. of the intersection of Conant/Clark				
Los Coyotes Diagonal	Major Arterial (No change)	entire st.				
Nieto Avenue	Changing from Minor Highway to Local Street					
Appian Way	Collector Street (No change)					
Bellflower	Major Arterial (No change)					
Bixby Village Dr.	Changing from Minor HWY to Local Street					
Woodruff Ave.	Minor Arterial (No change)					
Palo Verde Ave.	Changing from Secondary HWY to Collector Street					
Studebaker Rd.	Changing from Major HWY to Major Arterial - S. of Spring; & Minor Arterial - Spring to Carson			extended from Westminster to PCH		
Norwalk Blvd.	Major Arterial (No change)					

(1) Removal of parking shall be implemented in accordance with the policy statements listed in Section 5.1.3. of the Transportation Element.

Policies

Policy 1 - Keep through traffic out of neighborhoods by creating incentives for directing such traffic onto regional corridors and major arterial streets, and disincentives for use of local and collector streets.

Policy 2 - Make major capital improvements to the preferred routes. State routes should be given first priority for carrying increasing traffic. Specifically, Pacific Coast Highway (PCH) and the 405 Freeway should be emphasized over Ocean Boulevard, Seventh and Anaheim Streets for carrying east-west traffic. Major improvements include:

- Grade separations:

  Lakewood/Spring
  PCH/Traffic Circle
  PCH/7th/Bellflower
  Ocean/Alamitos

- Street Widening:

  7th Street, San Gabriel/Cerritos Channel Bridges
  Alamitos, Ocean to PCH
  Atlantic, 10th Street to PCH
  Magnolia, Ocean to PCH
  Lakewood, Spring to Conant
  Spring, Long Beach Blvd. to Cherry

- New/realigned roadways:

  Shoreline, Ocean/Shoemaker Bridge
  Ocean, to/from Shoreline
  Deforest, Anaheim/Shoreline
  Ninth St., City Limit/Santa Fe
  Studebaker, Westminster/PCH

- New ramps:

  Shoreline/Ocean
  Shoreline/6th/7th

- Intersection improvements

Policy 3 - Apply system management techniques, such as traffic signal synchronization or computerization, reversible lanes, parking prohibitions, left hand turn pockets, and recessed bus bays where

appropriate to optimize the existing capacity on Regional Corridors, Major Arterials, and Minor Arterials.

Policy 4 - Selectively eliminate parking on regional corridors, major arterials, and principal streets where such a decision is necessary to keep the Level of Service of "D" or better. Peak hour parking removal should not occur on Seventh and Anaheim Streets unless and until severe traffic congestion occurs on these streets causing diversion of traffic to parallel neighborhood streets, and that parking removal should not occur until the City has worked with business property owners on these streets to provide replacement parking where required. Additionally, the Traffic Engineer shall explore the option of creation of a reversible lane in lieu of parking removal on Anaheim Street. If it is determined that this option is feasible and effective, a reversible lane shall be established instead of removal of parking on Anaheim Street.

Policy 5 - Minimize the negative impacts on local businesses and residents caused by parking restrictions. Parking prohibitions shall be implemented only after notice and public hearings for impacted residents, landowners and businesses; and after the preparation and implementation of necessary neighborhood traffic mitigation and parking management programs for those neighborhoods which may be directly affected by the parking removal on the adjacent arterials. The program shall provide for property owners, business owners and the City to replace necessary lost or restricted parking with like or similar parking within a reasonable distance from the displaced parking.

Policy 6 - Eliminate unnecessary cross-traffic conflicts and property access conflicts along regional corridors and major arterials.

Policy 7 - Neighborhood and business groups shall be provided the opportunity to review preliminary plans for major street improvements included in the Plan before the final design and implementation.

5.1.4. Transportation Demand Management

Objectives

- Decrease utilization of the single-occupant automobile during peak travel period. The goal is to reduce vehicular work trips by 20%.
- Provide incentives to use alternatives to the automobile.
- Provide incentives for off-peak use of the roadway network.

Discussion

Transportation Demand Management (TDM) has become an important mechanism to alleviate peak-period congestion. To achieve the transportation goals as previously discussed, 20% of the total projected single-occupant vehicle work trips within the City should be reduced by the year 2010. Without this reduction, the street system will not meet the peak hour travel demands at acceptable service levels. This TDM effort can only be achieved by strong insistence and by creative incentives from the public sector, and by strong cooperation from the private sector.

The public sector can influence solutions by the enactment of regulations which may require the business community to change employee commute habits. Private sector involvement in transportation management can be most efficiently and effectively implemented through cooperative mechanisms like Transportation Management Associations (TMA). TMAs help reduce traffic in particular locations by assisting commuters in finding alternatives to the single-occupancy vehicle, promoting and marketing trip reduction plans, and providing coordination and monitoring assistance.

Coupled with ridesharing, carpools, and transit alternatives, parking pricing can be a key factor in causing communities to shift from single-occupant automobiles to other modes. For example, paying a transportation allowance to the employees and then charging for parking gives employees the option to pay for an individual parking space, to share the cost of a space with riders in a car pool, or to keep the money for personal purposes and use alternate forms of transportation. Also, a multi-modal parking validation program or regional voucher system may be utilized.

Since the reduction of single-passenger automobile trips requires behavioral changes which will not be easy to achieve, the design of TDM programs should begin immediately after the adoption of

this Element. Establishment of a Transportation Management Association in the downtown area should be given high priority. Additionally, the City should prepare and adopt necessary ordinances which will encourage and/or require participation by major employers, businesses and commuters.

Policies

The City of Long Beach is committed to fully comply with the California Clean Air Act and the 1991 South Coast Air Quality Management Plan respectively. Immediately upon adoption of the Transportation Element, the Air Quality Element of the General Plan will be initiated and transportation demand management programs will be designed to implement the following policies.

Policy 1 - Participate in and/or instigate regional efforts to reduce transportation demand.

Policy 2 - Discourage long-term parking within employment centers as market conditions allow.

Policy 3 - Create downtown and activity center Transportation Management Associations that will provide van-pool, transit, or rideshare alternatives, computer-assisted car-pooling, and guaranteed ride-home programs.

Policy 4 - Encourage all Long Beach employers to institute demand management programs for their employees and provide the technical assistance to establish and market such programs.

Policy 5 - Establish parking policies at employment centers consistent with the demand management philosophy of this plan.

Policy 6 - Establish and promote parking pricing measures where appropriate to encourage the use of forms of transportation other than the single-occupant automobile.

Policy 7 - Consider use of peak hour congestion pricing, where single-occupant vehicles would be billed for use of selected roadways during peak hours.

Policy 8 - Recognize non-work trips as a significant contributor to peak period congestion and introduce innovative techniques, such as congestion, pricing and flexible scheduling of non-work activities, to reduce peak-period, non-work trip demand.

5.1.5. Transit

Objectives

- Ensure that transit services are convenient, safe and aesthetically appealing so that transit use can become a viable transportation mode. The goal is to double the current transit ridership by 2010.

- Improve linkages with other transit systems and help to establish an integrated regional transit system throughout Southern California.

- Continue to encourage and assist Long Beach Transit in the development of a comprehensive, citywide transit service which not only serves transit-dependent riders but also seeks to attract non transit-dependent riders.

- Encourage innovative and/or private transit-related systems to address discrete transit problems.

Discussion

While the automobile will remain as the dominant means of transportation in Southern California and Long Beach, other means of travel must be developed if unacceptable levels of congestion and environmental damage are to be avoided. In addition to reduction of vehicular trips, transit can also reduce parking demand and help to minimize air pollution and reduce energy consumption.

One of the primary goals of this plan is to increase the usage of transit and to make it a viable option for both work and non-work trips. This plan is intended to improve the transit system, so it can provide a fast, convenient, safe, clean, and dependable service.

A. Ridership

Projected growth in the region, City, and especially downtown indicate that, while the number of traffic trips will increase substantially in the next 20 years, the share of those trips made by transit will remain about the same (increase from 2.8% to 3%). There are two primary reasons for this: (a) more trips to the Long Beach downtown will come from areas farther away and less well-served by transit; and (b) to date, sufficient incentives for transit usage and disincentives for automobile usage have not been created, even in peak periods. This pattern needs to change. Since the transportation planning goal is to reduce the dependency on single-passenger automobiles by 20% within the next

20 years, transit must play a significant role in the Transportation Demand Management programs.

According to the 1989 Long Beach Transportation Study: Volume III-Transit. (Barton-Aschman Associates, Inc.), it is suggested that the daily transit ridership should be increased from the current level of approximately 50,000 trips to 100,000 trips by 2010 if the established TDM goal is to be achieved. Based on this projection, the demand for the number of buses during the peak hours would increase from 139 vehicles in 1988 to 299 in 2010. Total fleet requirements could increase from 166 vehicles to an estimated 359 vehicles. Therefore, by 2010, an additional 193 buses may be needed to add to the current fleet. At a cost of approximately $175,000/bus, the total capital expenditure for fleet expansion would be about $33.8 million.

B. Regional Transit System

Over the years, recommendations have been made for a regional express bus system between regional activity centers and along existing transportation corridors. Long Beach should encourage the development of such a system and assure that it is coordinated with the activities of Long Beach Transit. Such a system could capitalize on the existing freeway system in providing a flexible and comprehensive transit service. The availability of express lanes on freeways and ramp meters may mean that bus travel is quicker than travel by automobile, especially at peak periods.

The regional system would be made more attractive if it were coordinated with the light rail services, so that light rail riders can easily get access to other transit services. This coordination effort should be made between the Orange County Transit District (OCTD) and Southern California Rapid Transit District (RTD). Furthermore, to make the system more user-friendly, simplification of transfer, such as combination of bus/rail fares, time transfers, common fares, and a regional transit pass must be considered. To promote transit use, a free regional transit pass can be provided as an incentive to employees. The City should support and participate in this coordination effort.

C. Pacific Electric Right-of-Way

With regard to the Pacific Electric Right-of-Way, the Transportation Task Force recommended that this strip of land between Long Beach Boulevard and Park Avenue, partially owned by the private sector and partially owned by the public sector, should be preserved for future transportation development. The Task Force found that future use of the corridor as a link in a regional mass transit system connecting West Orange County with Long Beach and Los Angeles County along the existing light rail

"Blue" and "Green" lines is an important possibility. No one believes that such linkages will occur in the near future because of the expense and difficulty of assembling rights-of-way for transit purposes, still, the Task Force was compelled to conclude that the Pacific Electric Right-of-Way should be kept available, to the extent possible, for future transportation development. This conclusion conforms neither to the Land Use Element nor to recent (1989-1990) decisions by the City Council. This Element, then proposes no transportation use for the PE right-of-way east of Long Beach Boulevard.

D. Park-and-Ride Facilities

While the demand for park-and-ride facilities in Long Beach is not strong at this time, increased growth in the future will increase their viability. However, they will not be a successful means of luring automobile riders from their vehicles unless the transit system can reduce commute time, provide a pleasant intermodal transfer experience, and is economical. Perhaps personal services such as day care centers, cleaners, shoe repair, mini-markets, and auto services can be established at such locations for the convenience of park-and-ride motorists.

Specifically, locations to be studied for park-and-ride facilities include the Alamitos Bend area at the intersection of the 405/22 and 605 Freeways, the vicinity of the intersection of the 405/710 and light rail line, and the intersection of Westminster Boulevard and Pacific Coast Highway.

E. Convenient and User-Friendly Local Services

The Land Use Element of the Long Beach General Plan recommends that future high density development occur along transit corridors and at major activity centers. Therefore, it is logical to provide transit to, from, and between the activity centers and along the routes where additional residential development is destined to occur. Express service between activity centers will encourage ridership and may even attract some non-work trips usually made by automobile.

Transit routes can be made more attractive to riders if certain guidelines in the establishment of routes are followed. Specifically, transit centers should be highly visible and identifiable; transit centers[1] and bus stops should provide route information including location of transfer points; and special lighting should be provided to enable riders to identify

---

[1] "Transit center" means a location where riders of vans and buses can transfer to community or regional transit modes (express buses and light rail). It does not imply buildings or other facilities of high capital cost.

stops. Additionally, these transit centers, bus stops, and buses should be maintained in a clean, safe, attractive manner.

Long Beach Transit should also explore the concept of using smaller buses (vans) to serve local neighborhoods. This would increase acceptance of transit in neighborhoods and thereby improve ridership. These local neighborhood lines could feed into a community transit center. From that transit center, express bus service will provide a non-stop ride to major activity centers.

F. Shuttle Services

Shuttles can provide attractive and convenient services within activity centers. The 1989 Long Beach Transportation Study: Volume III Transit Barton-Aschman Associates, Inc., recommended a downtown circulation system by shuttle, a route serving virtually all of downtown and the attraction area at the Queen Mary. Another area which could be considered for shuttle service is Belmont Shore, due to perceived parking problems and the unique character of its commercial strip. Such a service could link Belmont Shore with Naples, the Market Place and Marina Pacifica shopping centers. A shuttle linking the downtown and Belmont Shore would benefit not only downtown residents, but also tourists visiting the community.

G. Marketing and Promotion

To promote transit use, several incentive programs which have been successfully implemented in other cities should be considered. For example, Seattle, Washington, has a successful program whereby downtown shoppers are given a token when they make retail purchases. That token entitles the shopper to either credit on downtown parking charges or a free transit ride. Such a system encourages transit ridership.

Another successful program is the use of "fare-free zone". Fare-free zones are used in Portland, Oregon, and other cities. Riders boarding transit within a particular zone (Downtown) need not pay a fare. The use of fare-free zones will encourage the use of transit and reduce the traffic congestion within the downtown area.

Additionally, high fares discourage transit riders, especially among the transit-dependent. When patronage is lower than its potential, taxpayers are burdened by fixed costs which exceed the revenues derived. During non-peak hours, the transit system has excess capacity. Therefore, ridership should be encouraged at non-peak hours and on weekends to make maximum use of transit alternatives. Fare breaks or free rides for off-peak usage should be considered.

Special buses provided for the Long Beach Grand Prix prove that there is a market for ridership for special events. Long Beach Transit now has a program for such events. However, it is often subject to external regulations, such as franchise limitations, which limit its ability to provide services for special events. These regulations may need to be amended. Local citizens may ride transit to special events in town and even within the region if it is inexpensive, convenient, and safe. This is now done for the Rose Parade and a few football/baseball games.

H. Private Transit Options

Other forms of private transit are needed to supplement the bus and other systems. Private van service to airports is the best example of a private enterprise entry into the transit market. Such service is successful because it provides convenient door-to-door service, and the price of parking at airports makes the service economical.

While Dial-a-Ride programs currently serve the transit-dependent, it is expected that a reduction of barriers to market entry of airport shuttle and other similar type services would increase the availability of such services and perhaps lower the cost.

Policies

Policy 1 - Encourage and lobby state and federal legislators to increase funding and incentives for mass transit.

Policy 2 - Support expanded regional bus services without any barriers caused by municipality or county jurisdictional boundaries. A convenient linkage between local transit services and regional services should be provided, especially an express service connecting cities and major activity centers within this region.

Policy 3 - Continue to support usage of the light rail by encouraging coordination with other transit districts, establishing common fares, and creating efficient transfer systems.

Policy 4 - Support and promote employer participation in a regional transit voucher system where employee benefit options may include provision of vouchers to be accepted on all Southern California transit systems.

Policy 5 - Support and assist Long Beach Transit Company to develop a transit service expansion program which

will double the ridership (increasing from 50,000 to 100,000 daily trips) by 2010.

Policy 6 - Continue to support public transit programs directed toward meeting the transportation needs of elderly, handicapped, young and economically disadvantaged people.

Policy 7 - Expand Long Beach Transit bus fleets and facilities as ridership grows.

Policy 8 - Achieve a reasonable balance between auto use and transit use of roadways based upon the principle of optimum movement of persons.

Policy 9 - Build park-and-ride facilities at appropriate locations on the periphery of the city and provide frequent, dependable, safe, clean, and economical transit service from those locations to downtown and other activity centers when demand warrants.

Policy 10 - Maintain transit vehicles, stops, and centers in a clean, safe and attractive condition.

Policy 11 - Provide transit centers at major activity centers and develop linkages, including express transit service, among the centers and to the downtown.

Policy 12 - Develop design guidelines for transit centers and routes.

Policy 13 - Clarify transit routing and make transit information available at all transit centers, bus stops, and on all buses and light rail.

Policy 14 - Explore the possibility of fare-free zones in the downtown.

Policy 15 - Establish a shuttle service in downtown. When demand exists, consider a shuttle service within the Belmont Shore area, and a possible linkage between downtown and Belmont Shore.

Policy 16 - Provide special bus services for heavily attended special events.

Policy 17 - Consider a discount transit fare program at off-peak hours so as to encourage and maintain ridership.

Policy 18 - Develop parking/transit validation programs which provide customers with credit towards their choice of transit or parking.

Policy 19 - Increase citizen awareness and acceptance of public transit through simplified routes and schedules, improved signage, and ongoing promotion to market the benefits of transit service and the costs of private automobile usage.

Policy 20 - Support a taxi service adequate to meet needs.

Policy 21 - Amend regulations to permit private shuttle operations to expand their services to locations other than airports, and encourage other private transit alternatives such as taxi, van, and limousine services.

5.6.1. Bicycle and Pedestrian Movement

Objectives

- Encourage and facilitate walking and bicycling as viable modes of personal transportation and outdoor recreation, while promoting better health and reducing traffic congestion, air pollution and noise.

- Make walking and bicycling safer, more convenient and more enjoyable activities.

- Develop a bikeway network for all skill levels, which integrates regional and local bicycle routes and provides a convenient transfer to public transit.

- A 5% increase in bicycle use by the year 2020.

- Implement the Long Beach Bicycle Master Plan.

Discussion

The economic vitality of the City of Long Beach brings with it traffic congestion for residents and visitors. For both long commutes and short commutes in the City, people tend to drive, which adds to the traffic conditions they so dislike.

Citizens are beginning to understand the personal, economic and social benefits of walking and bicycling. Recognizing this growing interest and the need to promote transportation alternatives to private automobiles, a bicycle master plan was proposed to provide a safe and comfortable environment for cyclists, which encourages the use of this mode of travel for personal transportation as well as recreation.

The Bicycle Master Plan serves as a guide to the development and maintenance of a bicycle network, support facilities and other programs for Long Beach over the next 20 years. The Bicycle Master Plan is a technical reference of the Transportation Element of the General Plan.

A. Bikeway System

Safety concerns, the lack of desirable amenities associated with cycling and access to other modes of transportation are identified as significant barriers to the use of the bicycle for travel. To address the safety concerns, this Element recommends bicycle friendly design, when incorporating new technology and innovative treatments along designated bikeways.

In addition, education must be targeted to the cyclist as well as the motorist regarding the rights and responsibilities of the cyclists and

automobile drivers. Information about bicycle routes should be made available in the form of easy-to-read maps for City visitors, recreational facility users, students, commuting cyclists, and the general public. Furthermore, amenities such as drinking fountains, rest areas, racks, signage and shade trees will increase the use of designated pathways.

Figures 24A and 24B are derived from the Long Beach Bicycle Master Plan, the definitive document implementing the goals and policies of this component of the Transportation Element. These figures illustrate short, medium and long-term planned bicycle routes and facilities. The proposed locations of bicycle racks, lockers and access points indicated in Figures 24A and 24B are general in nature and subject to change without the need to amend this Element. In addition, short segments of the bicycle routes needed to complete the bicycle network may be implemented without amending Figures 24A and 24B at the approval of the directors of the Departments Public Works and Planning and Building.

Combining bicycles and transit can enhance both modes of travel. Buses and light rail enable cyclists to travel farther and faster than by bicycle alone. Bicycles provide convenient, inexpensive feeder and distributor service to transit stops. The combination can be fast and cheap enough to compete with private automobiles. To facilitate this combination, it is recommended that the Long Beach Transit Company should provide bike lockers or other secure storage facilities at major stations. In addition, the transit company and Metropolitan Transportation Authority (MTA) should also consider expanding the opportunities for bicyclists to carry or mount their bike onboard buses or passenger trains.

B. Pedestrian Movement

Pedestrian safety is a major concern especially for elderly and young children who are in the greatest danger when crossing streets. To ensure safe pedestrian crossing, signals should be installed at selected crosswalks to increase the amount of time available to safely cross a street by foot. Such signals should be installed at all locations where significantly high levels of pedestrians exist (i.e., schools, senior residences, post offices, parks, etc.), and the installations should conform to the criteria and standards adopted by California Department of Transportation (CALTRANS).

The long-term goal for downtown Long Beach is to become an 18-hour per day area of activity. In order to accomplish this goal, downtown needs to be more pedestrian-friendly. Sidewalks must be adequate for pedestrian traffic. Poles, fire hydrants, and trash containers should be placed so as not to impede such traffic. Shade trees, landscaping, and comfortable seating areas should be provided where possible.

Policies

Policy 1 - Provide a safe, comprehensive, bicycle network that services major generators of person trips, such as employment/activity centers, schools, parks, beaches, major transit stations, and residential areas. Bicycle parking, signage and security should be adequately provided at such locations.

Policy 2 - Encourage and support the creation of comprehensive safety awareness programs for cyclists and motorists.

Policy 3 - Integrate the City's bicycle network with regional networks.

Policy 4 - Minimize interference among motorized vehicles, non-motorized vehicles, and pedestrians.

Policy 5 - Construct park-and-ride facilities for inter-modal transfers between bicycles and other public transportation modes.

Policy 6 - Encourage public transit to accommodate bicycle transport, provided such usage will not unreasonably impede transit operations.

Policy 7 - Provide convenient and secure bicycle parking and support facilities at public buildings, shopping centers, office/industrial, public assembly buildings within the major employment/ activity centers, parks, multi-family developments, and similar trip generators.

Policy 8 - Provide clear bike-route information to cyclists by installing adequate signs along bike routes in order to provide proper traffic direction, and by publishing bikeway system maps.

Policy 9 - Ensure that pedestrian walkways are safe, convenient, and aesthetically appealing, especially at major activity centers.

Policy 10 - Install proper signals at those crosswalks where heavy pedestrian traffic exists. The Signal timing should be adjusted to provide an adequate amount of time to safely cross a street by foot. The installations should also conform to the criteria and standards adopted by CALTRANS.

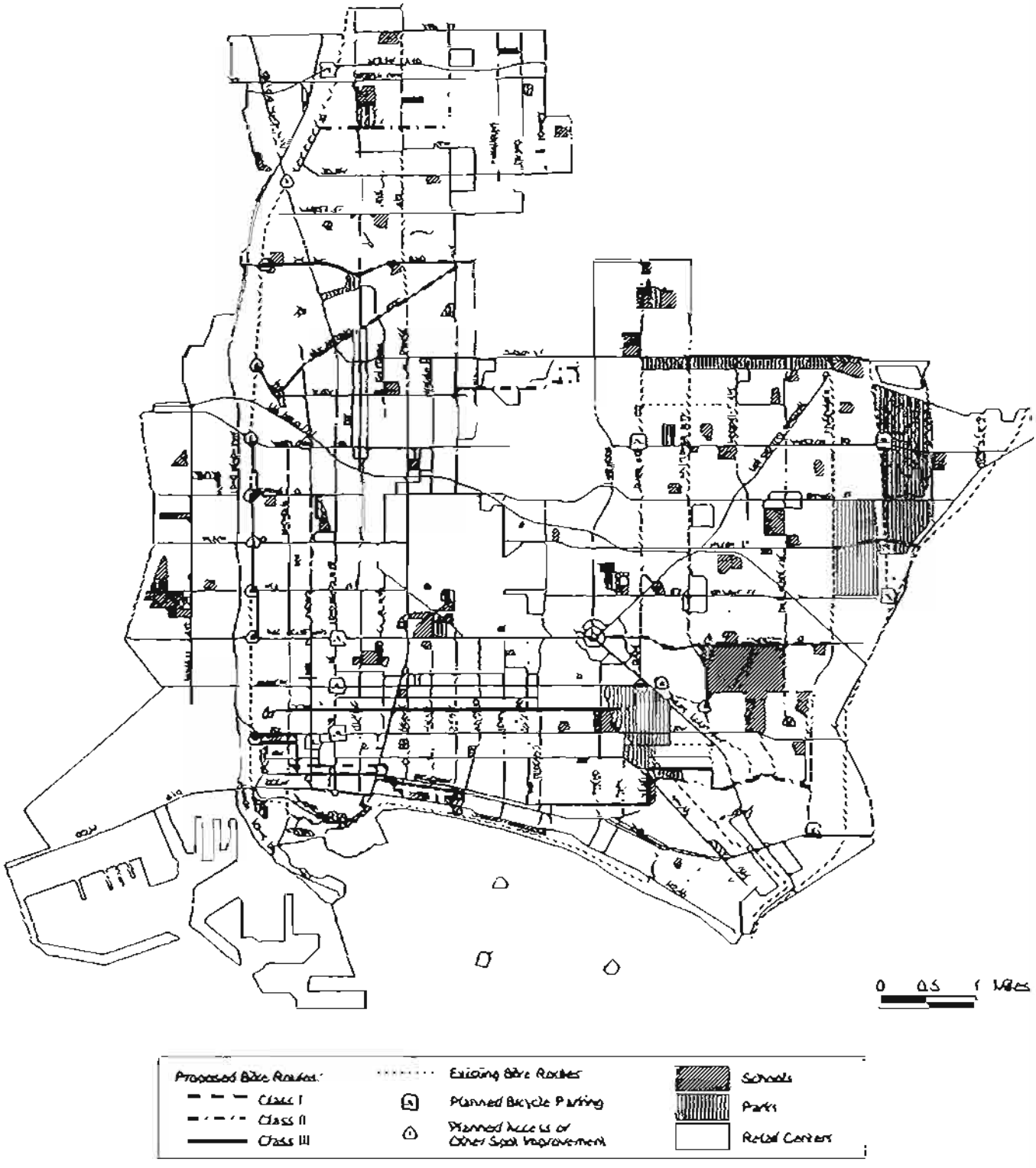


Figure 24a

SHORT-TERM BICYCLE ROUTE SYSTEM

City Of Long Beach, California

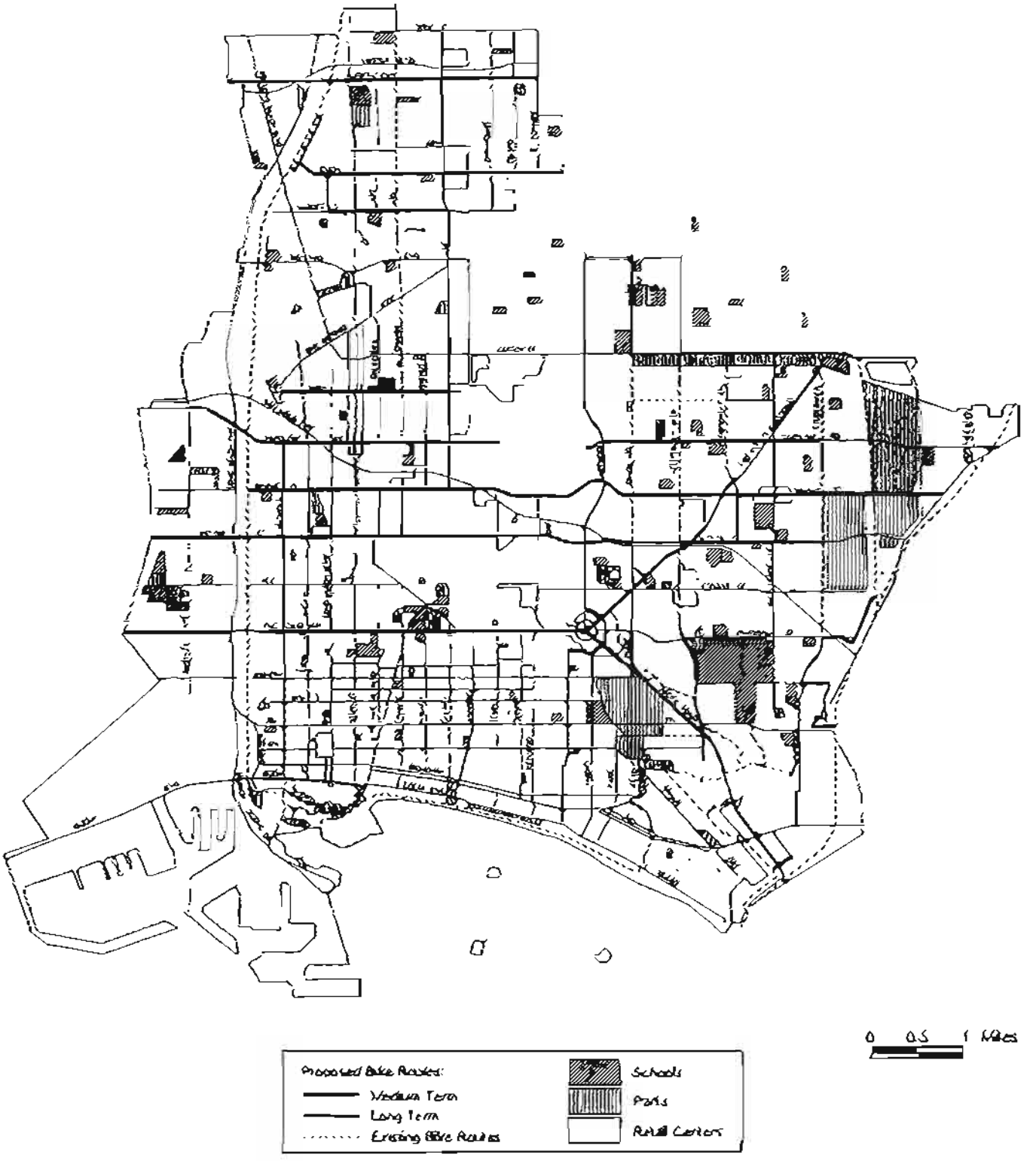


Figure 24b

MEDIUM AND LONG-TERM BICYCLE ROUTE SYSTEM

City Of Long Beach, California

5.1.7. Special Activity Centers - Downtown, Port and Airport

A. Downtown

Objectives

- Assist downtown Long Beach to be developed as a multi-purpose activity center of regional importance with adequate circulation system.
- Support land use planning strategies which integrate with the Downtown Transportation Plan.
- Develop a comprehensive downtown parking plan which will meet the needs of business and residents and will enhance the Transportation Demand Management Program.
- Encourage pedestrian movement and bicycle access to downtown.

Discussion

Projected growth in the downtown provides both a challenge and an opportunity for transportation planning. Based on the forecast, daily vehicle demand for downtown-related travel is expected to grow 170% by 2010, and peak hour travel is forecast to increase by more than 90% in the same time frame. Therefore, special attention must be given to the downtown area so the circulation system can move people within the downtown efficiently while contributing to the enjoyment of downtown life.

Currently, approximately 30% of P.M. peak hour trips within the downtown area represent through traffic. This number is expected to remain about the same through the year 2010. Through traffic pressure on downtown comes from traffic either going to the Port, Terminal Island, or the Wilmington/San Pedro areas in the A.M., or returning from those areas in the P.M. Also, the South Bay/Los Angeles Airport area, and even downtown Los Angeles traffic, may use the Long Beach (710) freeway to the downtown as a short-cut to get to the Seal Beach/Huntington Beach area during the P.M. peak hours. This will be especially true if HOV lanes are not constructed quickly on the L.A. County segment of the San Diego (405) Freeway.

In order to accommodate the future growth, downtown streets must be free of this through traffic. Special efforts should be taken to divert AM westbound traffic from Ocean Boulevard and downtown streets to Pacific Coast Highway. Likewise, P.M. peak hour traffic coming over the Thomas and Desmond bridges should be encouraged to go northbound on the Long Beach (710) freeway to avoid the downtown. Since it is impossible to widen existing

streets in downtown, transportation demand management programs, especially a parking management plan, will play a significant role in managing traffic. Public and private sectors must work together to reduce the dependency on driving alone and to eliminate unnecessary vehicular trips. Furthermore, efforts to encourage and attract pedestrian movement should be made to contribute to the urban ambiance so that downtown Long Beach can become an 18-hour people-oriented activity center.

Policies

Policy 1 - Direct through traffic to freeways and regional corridors and away from the downtown.

Policy 2 - Designate certain downtown streets as preferred and restricted vehicle entry streets to minimize conflicts with pedestrian walkways.

Policy 3 - Establish fare-free zones to encourage transit usage and to discourage short-trip use of automobiles within downtown.

Policy 4 - Provide shuttle, jitney, trams, monorails, water-based ferry service, and other forms of transit in the downtown.

Policy 5 - Encourage transportation demand management in the downtown by city government programs and the establishment of a Transportation Management Association.

Policy 6 - Improve the aesthetic quality of major arterial streets in the downtown.

Policy 7 - Provide clear, consistent, and distinctive signage and information to aid in the movement of people and goods in the downtown.

Policy 8 - Locate drive-in, automobile-oriented, quick-stop and other such establishments outside the central business district of downtown.

Policy 9 - Provide sufficient short-term parking to serve the needs of business, which may include a parking validation program for shoppers.

Policy 10 - Discourage long-term parking for employees and visitors to downtown by pricing long term parking at market rates and eventually reducing available long-term commuter parking spaces.

Policy 11 - Provide inexpensive parking peripheral to the downtown for long-term use, and service those lots with regular, safe, convenient shuttle buses when demand warrants.

Policy 12 - Develop programs to ensure adequate parking for downtown neighborhood residents, and discourage overflow parking onto neighborhood streets.

Policy 13 - Establish special parking ratio requirements for offices in the downtown area which decrease slowly over time in support of Transportation Demand Management Programs which prove successful.

Policy 14 - Encourage shared use of parking facilities when such facilities are not in use by the primary tenants during off hours.

Policy 15 - Encourage downtown businesses to provide clients and customers with tokens or vouchers for their choice of parking, transit, or taxi services.

Policy 16 - Provide bicycle parking facilities at the transit mall in the downtown.

Policy 17 - Provide safe, convenient bikeway connections to the downtown.

Policy 18 - Create a desirable pedestrian environment in downtown by removing obstacles to pedestrian movement and enhancing safety.

Policy 19 - Program signals or provide pedestrian-operated signals which permit ample time for crossing streets by foot.

Policy 20 - Monitor operation of the transit mall in downtown to assure continued convenient linkages between various modes of transit and transit routes both within the City and the region.

Policy 21 - Assure the availability of a mix of housing in and around the downtown to improve the jobs/housing balance.

Policy 22 - Continue to support mixed-use developments in the downtown.

B. Port of Long Beach

Objectives

- Reduce truck traffic on the Long Beach Freeway (710), especially during peak hours.
- Provide for efficient circulation of truck and rail traffic within the Port.
- Implement the Alameda Consolidated Transportation Corridor (ACTC).
- Ensure that port improvements are consistent with the regional transportation network.
- Provide safe and convenient parking for port tenants and visitors while minimizing the amount of primary port land devoted exclusively to parking.
- Encourage ridesharing activities within the Harbor District to reduce vehicle miles traveled (VMT) and parking space requirements in compliance with the SCAQMD requirements.

Discussion

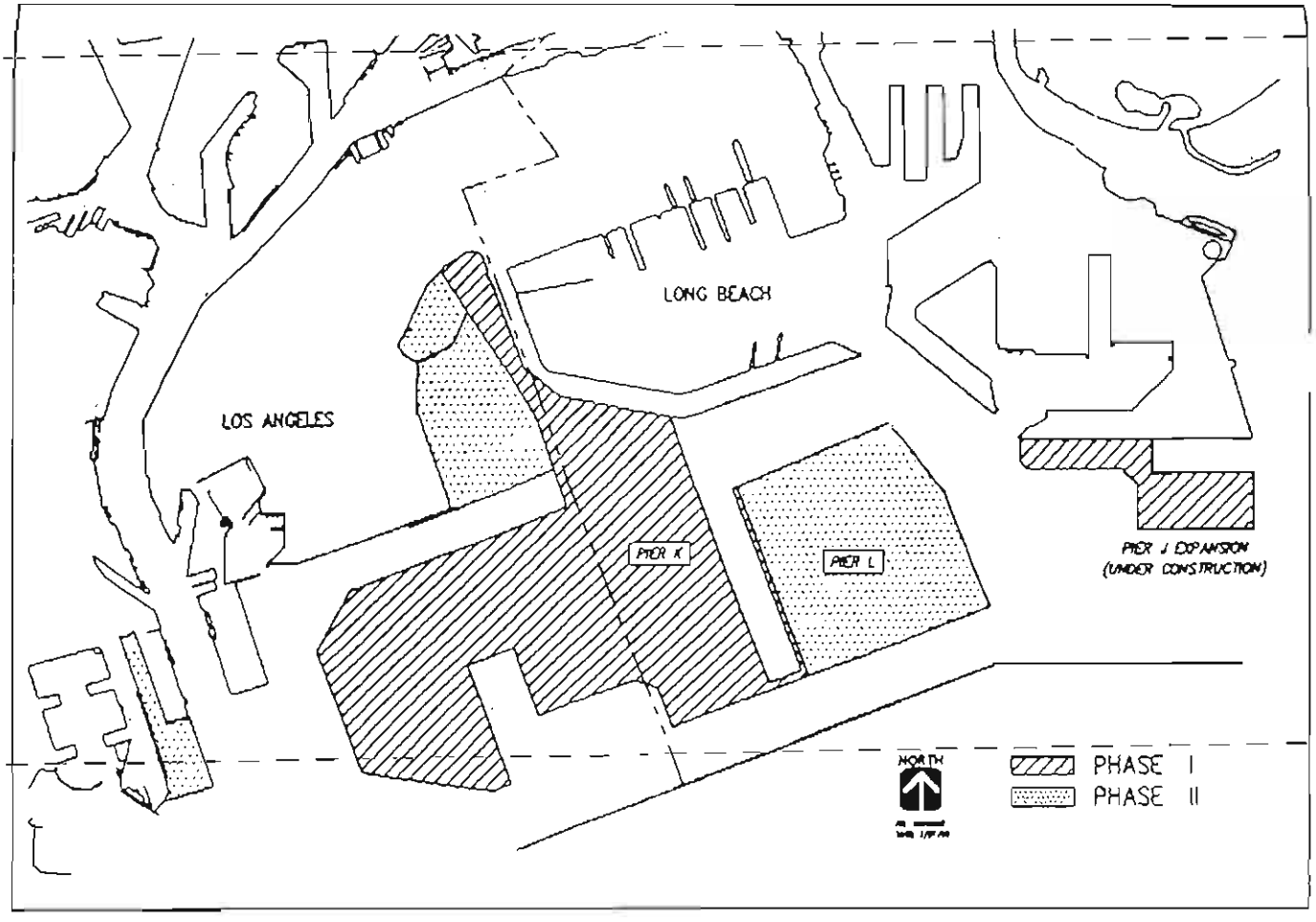
- San Pedro Bay 2020 Plan

To meet the international trade needs of the region and the nation, the Ports of Los Angeles and Long Beach have undertaken a long range, cooperative planning effort known as the 2020 Plan. As projected, an expanded port complex will include 2400 acres of new landfill and 600 acres of development on existing land (See Fig. 25). Approximately 50% of the new landfill will be located within the Port of Long Beach. The plan incorporates 38 new terminals and seven miles of deep draft ship channels.

If both ports grow as projected by 2010, the total truck traffic is expected to increase to 38,900 trips per day, which will represent 24% of the total estimated Average Daily Trips on the Long Beach Freeway (See Fig. 26). At the same time, the train traffic will also increase from 31 train movements to 106.

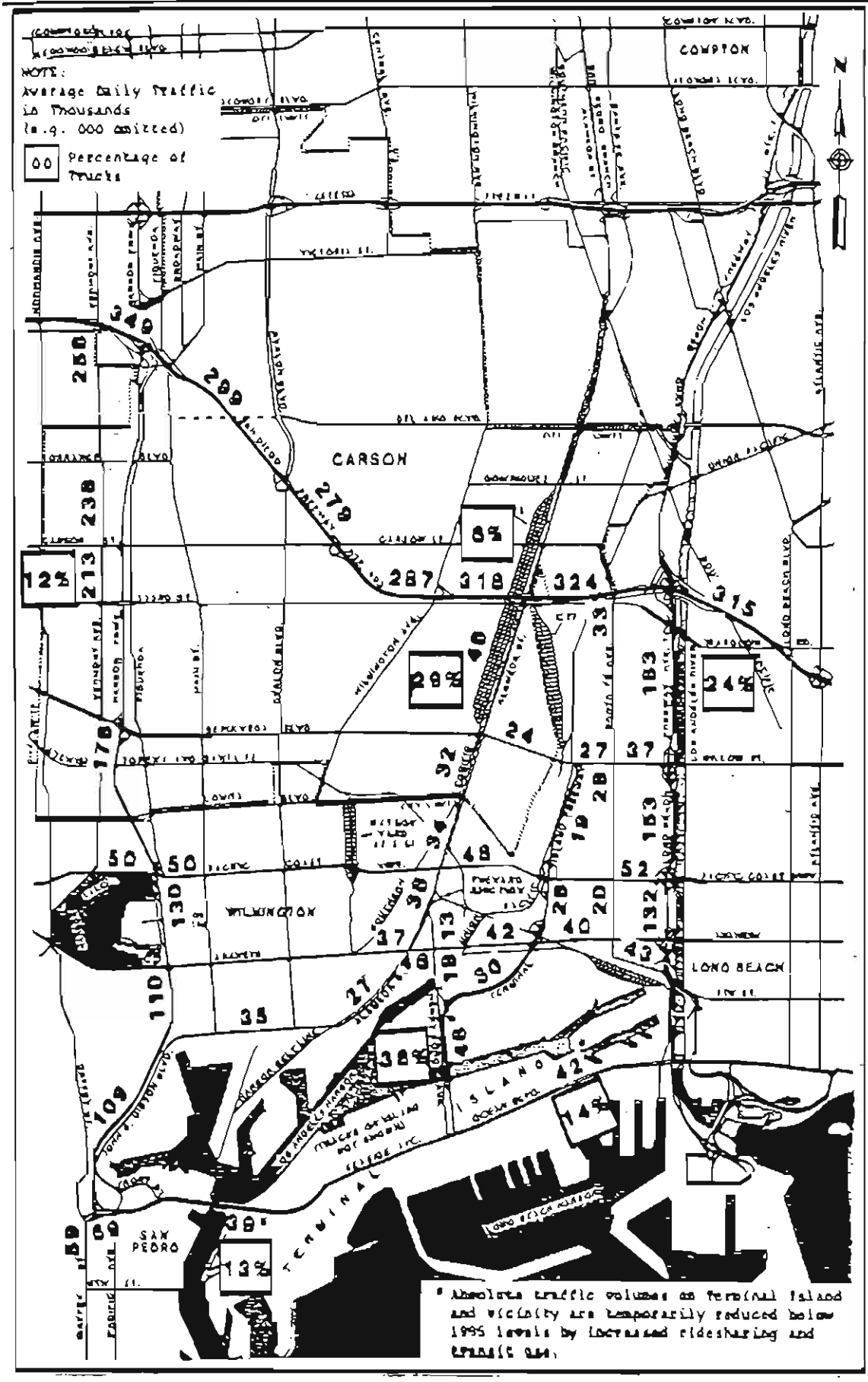
Providing adequate rail and highway access to handle the forecast cargo movement, while minimizing the negative impacts of this increase on existing Port of Long Beach facilities and surrounding communities, are the major issues facing the Port of Long Beach. Based on a number of studies, several transportation improvement projects have been recommended.

FIGURE 25
SAN PEDRO BAY PORTS 2020 PLAN



SOURCE: THE PORT OF LONG BEACH

FIGURE 26 PROJECTED TRAFFIC YEAR 2010
PORT EXPANSION PLAN



SOURCE: DeLEUW CATHER ASSOCIATES

1. Consolidated Transportation Corridor

The total volume of port-handled freight and the level of rail traffic have steadily increased in recent years. With this steady cargo growth, the existing transportation infrastructure will not be able to handle the expected additional tonnage. In August, 1989, a Joint Powers Authority (JPA) was created to oversee implementation of a proposed 20 mile route along Alameda Street which would divert train and truck traffic originating from or destined to the San Pedro Bay ports along a central corridor linked to major railroad marshalling yards. Implementation of this corridor will result in a comprehensive program of rail and highway improvements.

Under the corridor proposal, Alameda Street would be widened to a 6-lane highway and three railroads (Union Pacific, Southern Pacific, and Santa Fe) would share tracks parallel to Alameda Street, along the existing Southern Pacific San Pedro Branch line. Other improvements would be Alameda Street widening north of the Artesia Freeway, at least 16 major grade separations, and other improvements to rail and roadbed to reduce rail impacts and add system integrity.

The benefits of the Consolidated Transportation Corridor include improved air quality, reduction in truck traffic within the region, and substantially reduced impacts of trains at grade crossings and in residential areas. However, if the final agreement for implementation of the consolidated rail corridor cannot be reached, grade separations will be needed at South St./Union Pacific Railroad R/W; and Artesia Blvd./Union Pacific Railroad R/W to mitigate traffic delay at grade crossing. The improvement costs would be approximately $15 million for each grade separation. These additional improvement costs should be born by the Union Pacific Railroad Company and tenants of the Port who generate additional train traffic due to the increase of port activities.

2. Master Road and Railway Transportation Improvements.

Using the Double Stack Train (DST) concept of March 1988, the Port has evolved a workable DST plan for implementing on-dock DST facilities at its current and near-future container terminals. There are significant planning challenges in developing on-dock double-stacked train facilities. Careful layout of the lead track and support track is required to allow efficient train access and storage within the terminal.

Additionally, grade separations are needed to minimize the delay to vehicular traffic at locations where the rail lines cross streets at grade.

The Port has identified several projects that are necessary to separate the roadways and railways within the Harbor District to eliminate traffic delays. It is estimated that the total cost of these improvements within the Port would be $176 million. Some of these transportation projects for improved circulation will be paid for by assessments placed on port tenants, proportionate to their relative contributions to transportation impacts. The Port has committed to a time schedule for completion of these improvements (see Table 14 and Figure 27).

3. Parking

Currently, parking provision within the Harbor District is adequate except for a few locations. A shuttle operation is in use to mitigate some of these parking deficiencies. In the long term, a shuttle system may be a viable option for shuttling visitors between the Queen Mary, downtown Long Beach, Shoreline Aquatic Park or other remote locations, particularly if the Queen Mary parking needs expand.

A shuttle system for port operations, like Sealand's, may also prove to be feasible at other locations in order to reduce the amount of port land dedicated to parking.

4. Terminal Island Transportation Improvements

To accommodate the future port expansion plan, additional improvement projects are needed to facilitate rail and highway access to Terminal Island, future landfills and adjacent industrial areas. Table 15 lists the recommended improvements projects.

Policies

Policy 1 - **Support and assist the Port to implement the proposed Harbor Development Transportation Plan. Improvement projects are identified on Tables 14 and 15.**

Policy 2 - **Assist the Port to pursue inclusion of port projects in the State Transportation Improvement Plan.**

Policy 3 - **Encourage the Port of Long Beach to pursue a 24-hour operation via new labor and lease negotiations in order to minimize the effects of truck traffic throughout the day on local streets and the 710 Freeway.**

Policy 4 - **Take steps to attract port-oriented truck traffic to the Alameda Consolidated Transportation**

Corridor when it is completed, so as to reduce the percentage of truck traffic on the 710 Freeway.

Policy 5 - Encourage the Port to develop a parking management plan for the purpose of reducing the amount of port land dedicated to parking and reducing the dependency on single occupant automobiles.

Policy 6 - If the final agreement for the implementation of the consolidated rail corridor as a part of the Alameda Consolidated Transportation Corridor cannot be reached, grade separations must be installed at South St./Union Pacific railroad R/W; and Artesia Blvd./Union Pacific Railroad. The necessary improvement costs should be born by the Union Pacific Railroad Company and tenants of the Port who generate additional train traffic due to the increase of port activities.

TABLE 14
PORT OF LONG BEACH

MASTER ROAD AND RAILWAY TRANSPORTATION IMPROVEMENTS

PHASE I

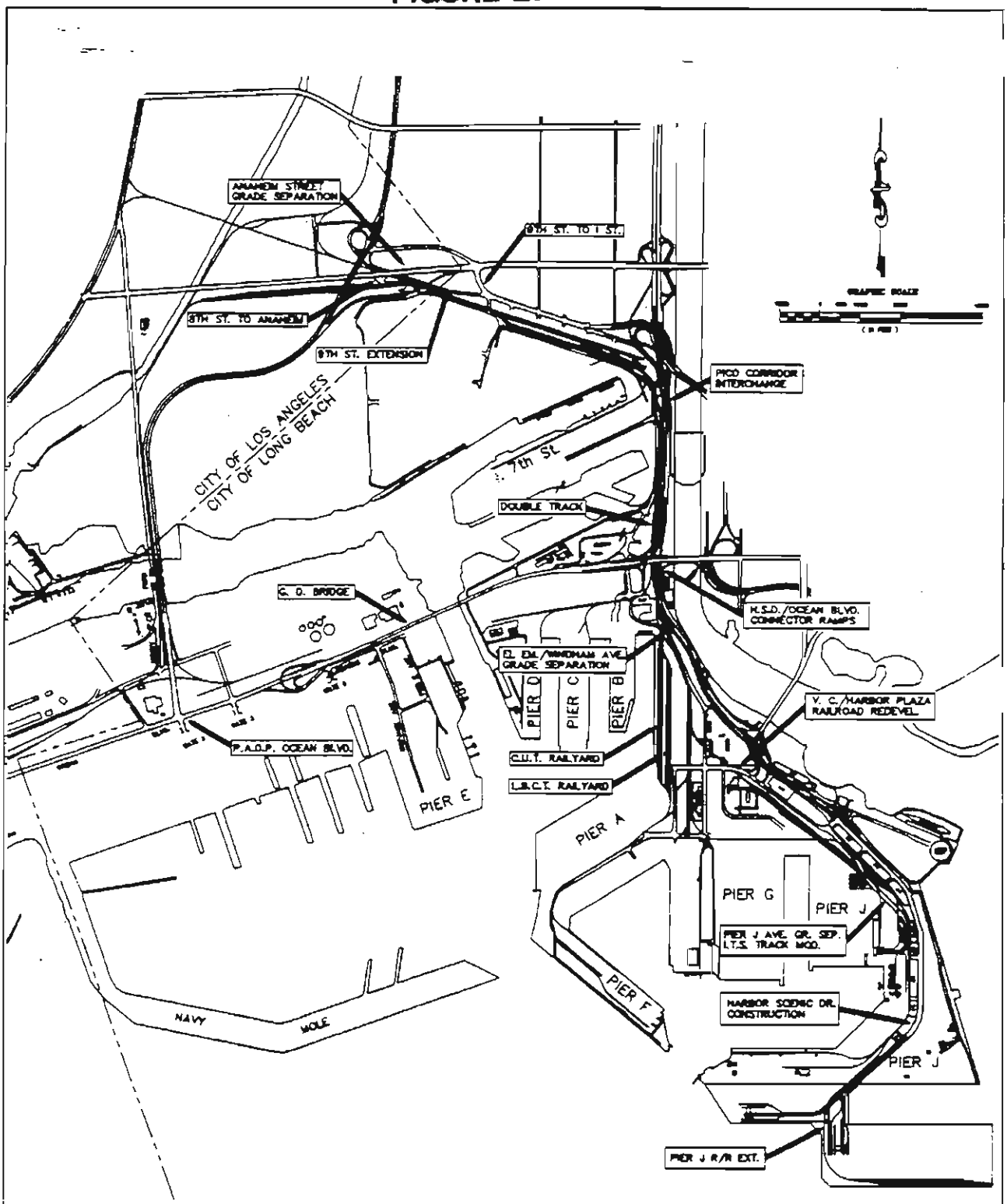
PRIORITY	DESCRIPTION	COMPLETION	COST (Millions)
1	Ninth to I Street Connection	1990	1.0
2	Eighth to Anaheim Street Connection	1990	0.4
3	Double Track - Eighth Street to Pier A Railyard	1990	1.8
4	Harbor Scenic Drive South of J-3	1991	2.0
5	Pier J Railroad Extension	1991	5.5
6	PADP - Ocean Boulevard	1991	8.9
7	Gerald Desmond Bridge	1991	8.2
8	Harbor Scenic Drive - Ocean Boulevard Connector Ramps	1993	14.0
9	California United Terminals Railyard - Water Street Loop Track	1992	8.5
10	Anaheim Street Grade Separation at Southern Pacific Crossing	1993	20.0
11	Ninth Street to Terminal Island Freeway Extension	1993	3.0
		Subtotal	73.3

PHASE II

PRIORITY	DESCRIPTION	COMPLETION	COST (Millions)
1	El Embarcadero - Windham Grade Separation	1994	20.0
2	West 7th Street Terminal Expansion On-Dock Rail	1997	2.0
3	Pico Corridor Interchange	1997	44.6
4.	Van Camp - Harbor Plaza - Railroad Redevelopment	1998	10.4
5	Pier J Grade Separation - ITS Rail Yard Modification	2000	26.0
		Subtotal	103.0
		TOTAL	176.3

SOURCE: LONG BEACH HARBOR DEPARTMENT

FIGURE 27



PORT OF LONG BEACH
MASTER ROAD AND RAILWAY
TRANSPORTATION IMPROVEMENTS

SOURCE: LONG BEACH HARBOR DEPARTMENT

TABLE 15
PORT OF LONG BEACH

TERMINAL ISLAND TRANSPORTATION STUDY
"RECOMMENDED PROJECTS"

RECOMMENDED PROJECTS			
No.	DESCRIPTION	Year Needed	Cost Est. (Million $) (1987)
1	Badger Avenue Bridge Rehabilitation	1990	4.0
	MAINLAND		
2	Direct Rail Connection: Santa Fe Rwy @ Thenard Tower	1995	3.9
3	Direct Rail Connection: SPTCo. to Badger Avenue Bridge	1995	
4	Pacific Coast Hwy Interchange/ Separation	2010	8.0
4A	Alameda-Anaheim Interchange and Separation	2010	10.0
5	Harbor Belt Line RR Yard Relocation	2000	11.7
6	Terminal Island Fwy. Ramps Underpass @ Henry Ford Ave.	2000	5.5
7	Henry Ford Avenue Underpass	1995	12.2
	ON TERMINAL ISLAND		
8	New Dock Street Underpass (incl. trackwork)	2010	16.3
9	Vincent Thomas Bridge Toll Plaza Direct Ramps	1995	1.4
10	Seaside Avenue/Navy Way Interchange	1995	7.1
11	Ocean Boulevard/Terminal Island Fwy. Interchange	1995	19.1
12	Brighton Beach Yard Ext.	2010	5.7
	LANDFILL ACCESS CORRIDOR		
13	Pilchard St./Navy Way Separation	2010	6.6
14	Landfill Braided Interchange	2010	8.8
		TOTAL	$120.0 (Rounded)

SOURCE: LONG BEACH HARBOR DEPARTMENT

C. Airport

Objectives

- Support the Long Beach Airport as a viable commercial aviation facility to serve the community needs while maintaining the quality of life of the adjacent residential neighborhoods.
- Reduce pollutants emitted by Airport operation.
- Provide convenient ground access to and from the Airport by using public and private transit services.
- Ensure that the Airport Activity Center will be developed as a viable employment center and maintained an adequate level of transportation service.

Discussions

The lack of a long-range plan for Long Beach Airport leaves a gap in the recommendations contained in the Transportation Element. When a long-range development plan is adopted by the City Council, the Transportation Element should be amended so that adopted airport policy can be included in the General Plan for the City. Once a plan is adopted and a level of future airport operations established, the surface transportation, parking, and ground transportation access needs can be determined and solutions developed.

According to the 1989 Air Quality Management Plan, a number of programs, in an attempt to reduce pollution emissions, are to be undertaken at all of the commercial airports in the region, including Long Beach. Control measures to be considered include increased air passenger load factors, improvements to jet aircraft ground handling and taxi operations, reduced jet aircraft queuing delays, and fewer passenger auto trips. Implementation of these programs may alter the current airport operations. Thus, the new master plan must take into consideration all of these requirements.

As the City will continue to expand its activities in tourism, conventions and international trade, an increasing number of airline passengers will be travelling between the Airport and Downtown. By providing attractive and convenient public and private transit services for patrons, the need for relying on private automobiles can be reduced.

Therefore, frequent services to make connections from the Airport to downtown, LAX and other activity centers should be encouraged.

The Airport Activity Center is another fast growing area in the City. A significant amount of new commercial development is anticipated which will provide additional employment opportunities. Consequently, substantial trips will be generated by new development. In order to ensure that an adequate level of transportation service will be maintained throughout the area, a special assessment district with traffic mitigation program has been established. The transportation demand management program is designed to reduce peak hour automobile trips by at least twenty percent (20%). Several recommended roadway improvement projects are also intended to alleviate future traffic congestion in this area. These projects include widening of Lakewood Boulevard and Spring Street; grade separation at Spring Street and Lakewood Boulevard; and intersection improvements. Future development, necessary intersection and roadway improvement projects will be carefully monitored and implemented.

Policies

Policy 1 - Adopt a long-range development plan for Long Beach Airport when the court decision regarding the number of flights and noise regulations is rendered. When this master plan is adopted, the Transportation Element should be amended accordingly.

Policy 2 - Provide frequent public and private express transit services connecting Downtown Long Beach and other major activity centers with Long Beach Airport and Los Angeles International Airport.

Policy 3 - Require all airport tenants and other employees to join the Transportation Management Association which is established for the airport activity center.

Policy 4 - Support and assist the airport to implement control measures pertaining to the airport operations in accordance with the Air Quality Management Plan.

Policy 5 - Monitor future development projects based on the effectiveness of trip reduction program.

5.1.8 Neighborhood Traffic Management Programs and Citizen Participation

Objectives

- Involve citizens in transportation planning and in decision-making regarding traffic management projects throughout the city.
- Develop appropriate traffic mitigation and parking programs to meet special needs of concerned neighborhoods.

Discussion

To ensure that a residential neighborhood will not be impacted by excessive through traffic, there is a need to work closely with neighborhood groups in developing a special traffic management program for each concerned neighborhood. Such a program may consider the following strategies: program signals to divert traffic away from neighborhoods; use other appropriate techniques to inhibit through traffic on local neighborhood streets; close certain local streets where they intersect with regional corridors and major arterials; and increase enforcement of traffic laws on local streets within a neighborhood. A program shall be developed to monitor neighborhood traffic and to prepare plans, as necessary, to safeguard against cut-through traffic. For those neighborhoods which may be directly affected by a parking removal program on an adjacent arterial street, a neighborhood traffic mitigation and parking program must be completed before the enactment of the parking removal.

Traffic-generated noise will become more of an issue in the future. More detailed discussion regarding the relationship between noise level and the traffic speed can be found in Appendix D.

High speeds and impediments to a smooth traffic flows are some of the factors that increase vehicular noise. In a quiet residential neighborhood, special street operation design can control the traffic volume and the speed limit. Along major transportation corridors, noise level can also be mitigated by building design and traffic operational modifications.

Special design features that can reduce noise impacts are:

Physical Barriers.

For instance, berms would permit residential units to be screened from excessive noise.

Landscape.

Trees and other planting materials in sufficient densities can act as noise limiting absorbants, as well as bring visual relief.

Building Insulation.

Additional noise insulation devices such as noise insulated building walls and double-panel windows can effectively mitigate noise problems.

Moreover, traffic management techniques including coordinated signal lights, turn lanes, and access controls can also minimize noise resulting from frequent vehicular acceleration and deceleration.

In order to minimize the noise impact, the City should consider applying some of these design features, especially on those residential development fronting on major thoroughfares.

Implementation of the Transportation Plan is an ongoing process. The Transportation Element also requires frequent and regular re-assessment and monitoring in response to the changing realities. A regular review process will enable both the City and community groups to evaluate the implementation progress and attainment of the policies. As a result, new policies and necessary revisions should be made when appropriate.

Policies

Policy 1 - Increase communication and understanding between citizens, including neighborhood organizations, and the City to insure that citizen input is sought, received, and responded to on a regular and systematic basis. Neighborhood groups shall be provided the opportunity to review preliminary plans for any major improvements included in the Plan before final design and implementation.

Policy 2 - Develop Neighborhood Traffic Mitigation and Parking Programs as needed to provide solutions to traffic problems. Such programs may include physical improvements to streets, intersections, crosswalks, pavements, and medians; traffic diversion techniques such as cul-de-sacs, one way movement and turning restrictions at intersections with arterial streets; increase of residential parking by using diagonal parking on streets where appropriate; and various law enforcement techniques. All of these mitigating measures should contribute to the safety and tranquility of

the neighborhoods. Necessary funds shall be allocated to implement these programs.

Policy 3 - The Planning Commission should conduct a regular annual review hearing. This process should:

- o Seek on-going citizen input with regard to transportation issues;
- o Monitor implementation of the adopted Transportation Element;
- o Review and recommend revisions to the Transportation Element; and
- o Provide new policy recommendations.

5.2 MAJOR CAPITAL IMPROVEMENT PROGRAMS

Proposed major roadway improvements are primarily based on the recommendations made by The Transportation Task Force and city-wide citizens' input in the strategic planning process. These recommended improvements have been evaluated by computer modeling and found to be the best actions to take in order to accommodate the projected growth and to maintain an acceptable level of service for traffic throughout the City. In general, improvements fall into the following categories:

- o Freeway widening
- o Roadway widening
- o New Roadways
- o Grade separations
- o New ramps
- o On-street parking removal
- o Intersection improvement

Table 16 lists the improvement projects and estimated costs. It should be pointed out that because freeway widening projects are solely funded and regulated by Federal and State agencies, the costs associated with these projects are not included. The total preliminary cost for other roadway improvements (City responsible projects), are estimated at $152 million. Figure 28 shows the locations of these recommended improvements.

Additionally, the long-range traffic management programs call for transit improvement and implementation of a parking management plan in the downtown area. The estimated costs are $60 million for expansion of transit services, and $20 million for the parking management program. The total capital improvement costs are estimated at $232 million (Table 17).

As illustrated on Figures 29 and 30, through the implementation of major roadway improvements, and a transportation demand program featuring ridesharing, parking management, and expanded transit expansion, the city street network can accommodate the projected growth and still maintain acceptable traffic and transportation service levels (Level of Service D or better) as that of today.

Table 16

Major Roadway Improvement Projects and Estimated Costs

Category/Location	Preliminary Cost ($ millions)
Street Widening	$18.0
o 7th Street, San Gabriel/Cerritos Channel Bridges	
o Alamitos, Ocean - PCH	
o Atlantic, 10th Street - PCH	
o Magnolia, Ocean - PCH	
o Lakewood, Spring - Conant	
o Spring, Long Beach Blvd. - Cherry	
Grade Separations	$73.0
o Spring/Lakewood	
o Traffic Circle	
o Iron Triangle	
o Ocean/Shoreline/Alamitos	
New Downtown Ramps	$15.0
o Shoreline-Ocean	
o Shoreline-6th-7th	
New/Realigned Roadways Segments	$12.0
o Shoreline, Ocean - Shoemaker Bridge	
o Ocean Blvd. Access Ramp to and from Shoreline	
o DeForest, Shoreline - Anaheim	
o 9th Street, West City Limits - Santa Fe	
o Studebaker, PCH - Westminster	

Table 16 (Continued)

Major Roadway Improvement Projects and Estimated Costs

Category/Location	Preliminary Cost ($ millions)
Traffic Operations/Parking Prohibitions	10.0
o Signal System Expansion/Upgrade o Restriping & Signing o Parking Prohibition All Day Prohibition - Streets within the downtown area (Ocean, Broadway, 3rd St, 6th St. and 7th St.). Peak Hours Only - Between 7:00 a.m. - 9:00 a.m. parking will be eliminated on the north side (or west side) of streets; between 4:00 p.m. - 6:00 p.m., parking will be eliminated on the south side (or east side) of streets. 1. 7th St. (E. of Alamitos); 2. Anaheim St.; 3. PCH; 4. Los Coyotes Diagonal; and 5. Willow St. (West City to Magnolia) 6. Alamitos (Ocean to PCH) 7. Atlantic (Ocean to 10th St.) 8. Cherry (Spring to Carson) 9. Los Coyotes 10. Clark (Willow to 300 ft. north of Conant/Clark)	
At-Grade Intersection Improvements	$24.0
TOTAL PRELIMINARY COST (MILLIONS)	$152.0

TABLE 17

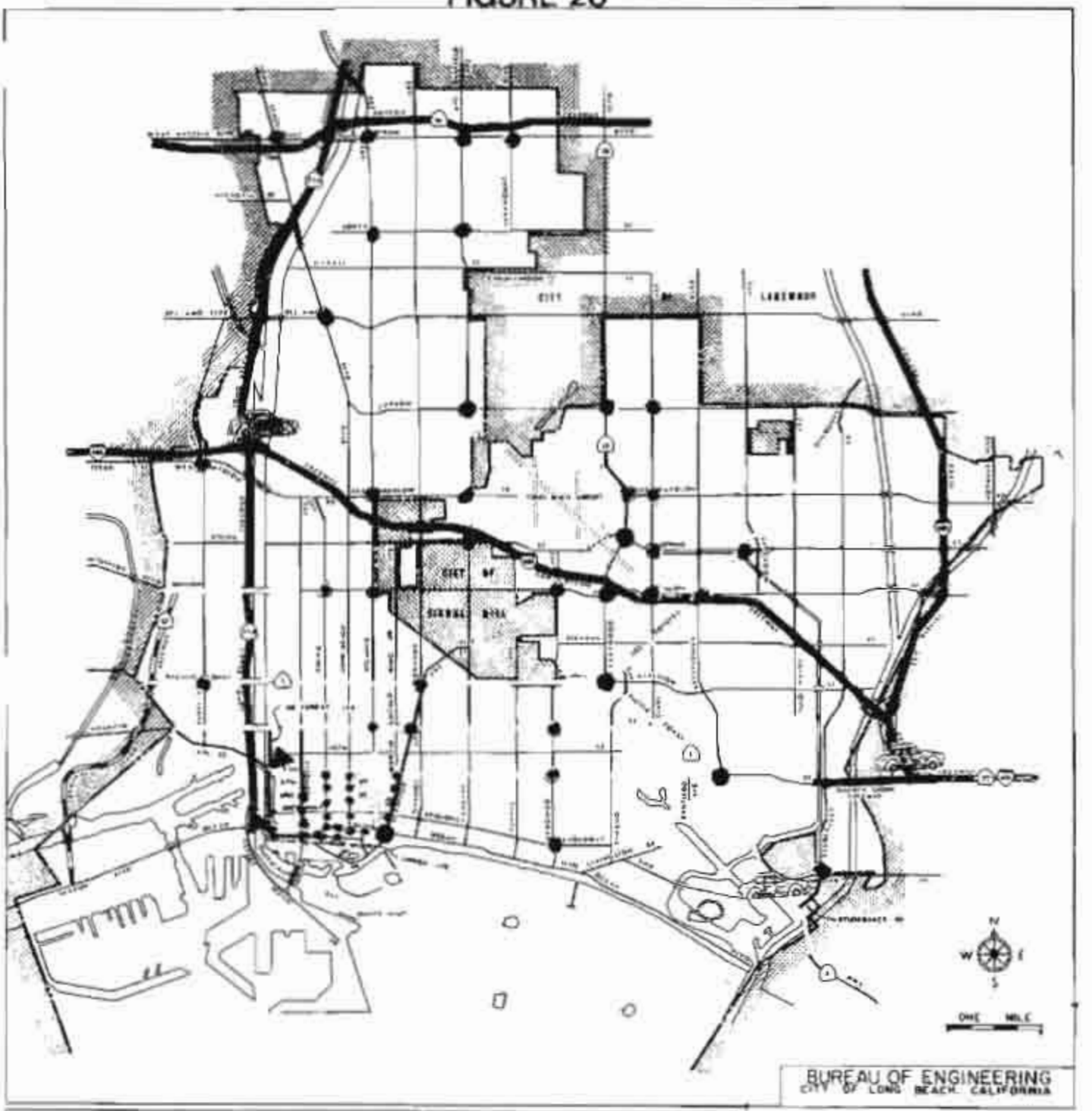
PROPOSED TRANSPORTATION IMPROVEMENT PROGRAM

($ million)

Roadway		Parking		Transit	
Existing deficiencies	$ 10	Peripheral	$13	CBD Shuttle	14
Required by growth	142	Replacement	7	Fleet Expansion	34
				Park & Ride Lots	12
Total	$152		$20		$60

Grand total: $232

FIGURE 28



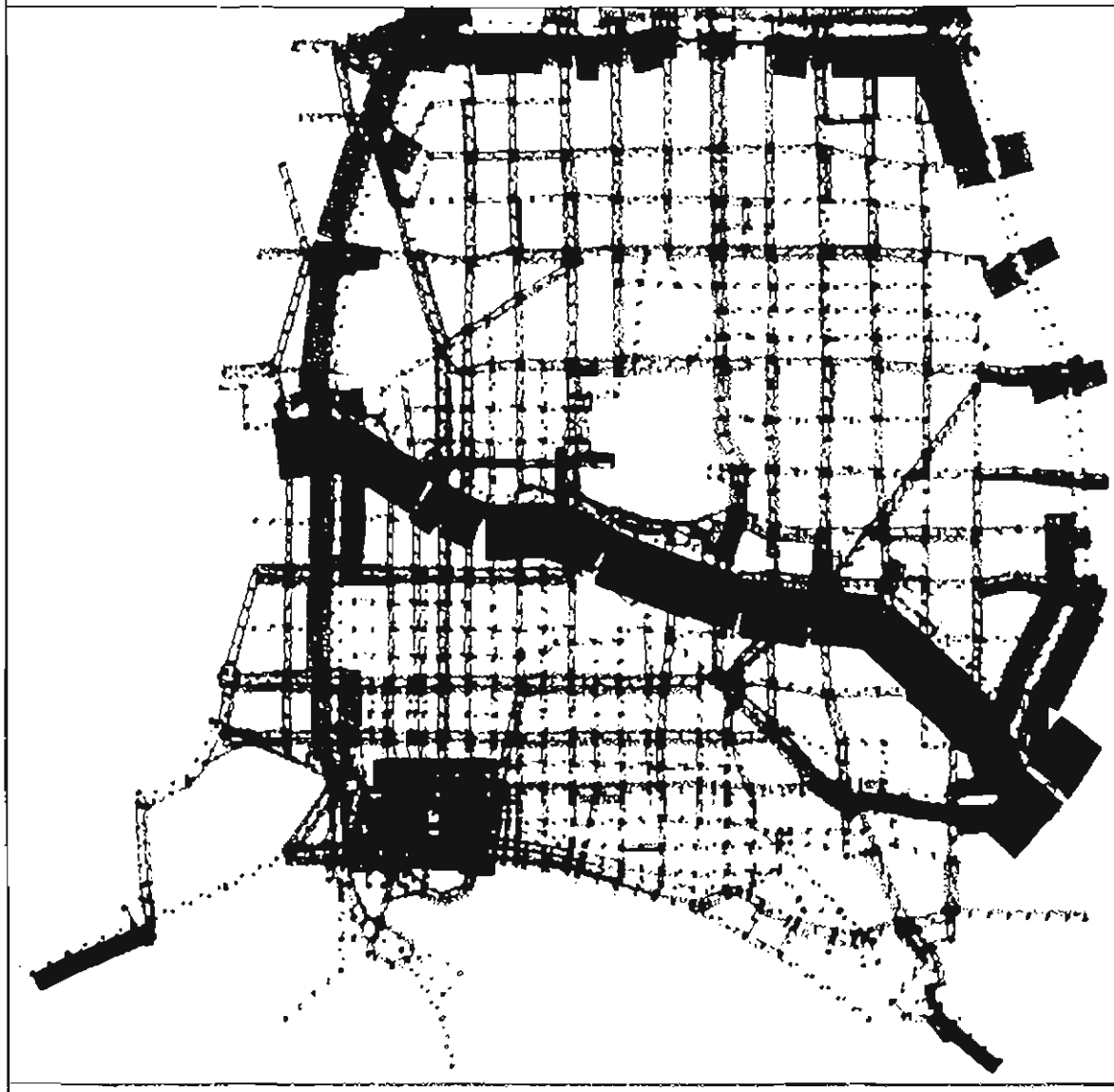
LEGEND:

- STREET WIDENINGS*
- NEW ROADWAY
- FREEWAY WIDENINGS
- PARKING PROHIBITION
- GRADE SEPARATION
- POTENTIAL SITES FOR PARK-AND-RIDE FACILITY
- NEW RAMPS
- INTERSECTION IMPROVE.

THIS MAP ONLY SHOWS MAJOR SECTIONS OF STREET WIDENINGS. THOSE SEGMENTS OF STREET DEDICATION THROUGH THE REGULAR SUBDIVISION PROCESS ARE NOT SHOWN HERE.

MAJOR ROADWAY IMPROVEMENTS

CITYWIDE LOS - implementation of major capital improvements



emme/2

LINES:
TYP=10.60
COL-IND: UL1
THRESHOLD:
LOWER:
UPPER:

Green
V/C < 0.9

Yellow
0.9 < V/C < 1.1

Red
V/C > 1.1

SCALE: 400
1000
2000
3000
4000
5000

WINDOW:
-1.851/-1.038
11.205/ 8.445

EMME/2 PROJECT: LONG BEACH
SCENARIO 714: CTP REC.: NO ATH. CON., NO PCH/2ND C.S.-VOLUME BY LOS RANGE

DATE: 90 08 06
MODULE: 2.13
LBDPV.....tml

FIGURE 29

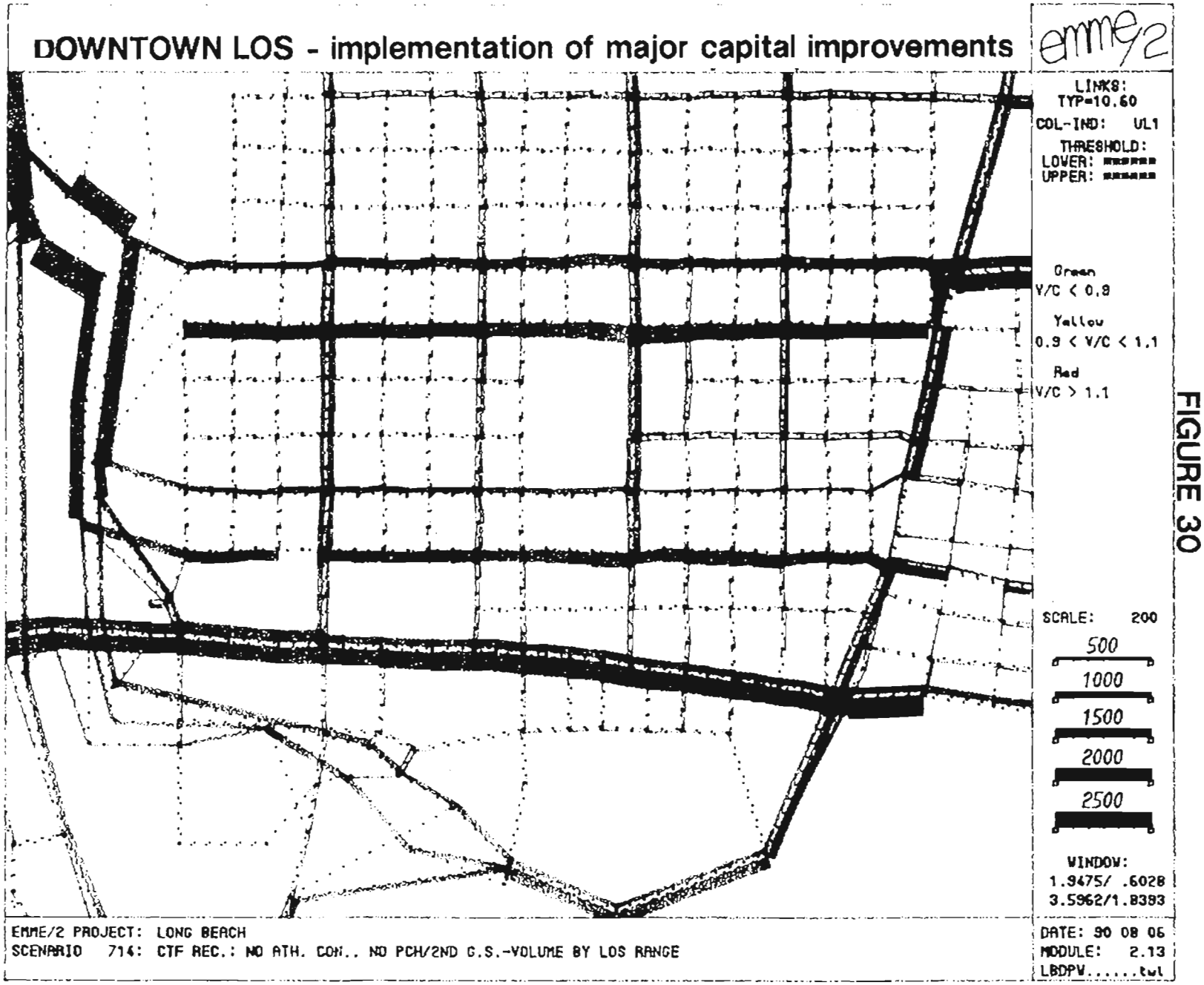

DOWNTOWN LOS - implementation of major capital improvements
emme/2
LINKS:
TYP=10.60
COL-IND: UL1
THRESHOLD:
LOWER:
UPPER:
Green
V/C < 0.9
Yellow
0.9 < V/C < 1.1
Red
V/C > 1.1
SCALE: 200
500
1000
1500
2000
2500
WINDOW:
1.9475/ .6028
3.5962/1.8383
EMME/2 PROJECT: LONG BEACH
SCENARIO 714: CTF REC.: NO ATH. CON., NO PCH/2ND C.S.-VOLUME BY LOS RANGE
DATE: 90 08 06
MODULE: 2.13
LBDPV.....twl

FIGURE 30

VI. IMPLEMENTATION

VI. IMPLEMENTATION

The General Plan is not an implementation tool. Rather, the Plan establishes the foundation for goals, objectives, and policies for future action. Therefore, the Implementation Section identifies strategies and action programs for carrying out the recommendations contained in this Element.

6.1 OVERALL STRATEGY

The implementation strategy of the Transportation Element is to maintain acceptable levels of traffic service throughout the City in the face of growth and change by expanding the capacity of various streets and intersections, and reducing the demand for urban travel. The strategy depends on maintaining a balance between traffic-inducing growth and the availability of revenues with which to build needed improvements and provide needed services to accommodate such growth.

6.2 NOTIFICATION AND REVIEW PROCEDURES.

Establish standard notification and review procedures for transportation related projects that would significantly affect the flow of traffic within the city. Such projects would include but not be limited to: a) parking restrictions and/or removal for the purpose of adding a travel lane; b) right-of-way alterations and street widenings; and c) grade separations. Notification of landowners, businesses and residents within a 500 foot radius of the proposed change must be done by mail and physically posted in affected areas.

6.3 RIGHT-OF-WAY PLAN

Engineering studies shall be undertaken (with guidance from the Neighborhood and Historic Preservation Officer for consideration of older neighborhood infrastructures independent of design criteria) for all classified streets, beginning with all designated major and minor arterials and their key intersections, which will be used to require dedication for street purposes when private properties are developed. Excess property dedicated to the City will be returned to the property owner once the studies are completed, along with any fees associated with the dedication or returning of said property.

6.4 IMPLEMENTATION PRIORITIES FOR ROADWAY IMPROVEMENT PROGRAMS

The recommended improvement priorities are based on the following criteria.

1. Traffic level of service should be held at "D", as much as possible.

   In order to maintain the level of service "D" or better, the proposed improvement scheduling is intended to respond to the traffic demand based on the anticipated growth.

2. Major projects such as grade separations need lead time for project development activities.

   A part of the implementation process is to conduct preliminary engineering and design studies on these projects in order to define the scope of work and to refine the cost estimate for each one. Major improvement projects may also involve acquisition of additional rights-of-way and coordination with other agencies, such as CALTRANS. Such activities will require additional processing time.

3. Projects should be spaced as evenly as possible over the twenty-year planning period to smooth out the demand for funding.

   The projected funding sources include gas tax, Proposition " A" fund, tax increments, assessment fees (i.e., special assessment districts) and development fees. Therefore, the improvement projects should correspond with the availability of funds.

4. Projects that support an early and rapid rate of development in the downtown and the Airport Business Park are of high priority.

   It is anticipated that the airport activity center will reach its build-out by 2000, and more than 50% of development projects in downtown will be completed by 2000.

The combination of existing problems, expected growth rates, and corridor improvement needs, means that certain capital projects must be implemented earlier than others so that traffic conditions do not deteriorate excessively.

The highest priority is to improve the facilities needed to move traffic east and west in the southern part of the city. State routes should be given first priority for carrying increasing

traffic. Specifically, Pacific Coast Highway (PCH) and the 405 Freeway should be emphasized over Ocean Boulevard, Seventh and Anaheim Streets for carrying east-west traffic. Key projects are the construction of the grade separation at the Traffic Circle, and removal of parking during rush hours on Pacific Coast Highway.

The next highest priority is to improve access to and from the downtown by the widening of Alamitos Avenue from Ocean Boulevard to PCH, and construction of the Iron Triangle grade separation.

At the same time that these first two priorities are being addressed, the improvement program will also implement projects that resolve existing traffic circulation and congestion problems. Parking prohibitions will be put into effect on arterial streets as they are needed to increase peak hour capacity.

A key project that supports downtown traffic growth is the grade separation of the Ocean Boulevard and Alamitos Avenue intersection. This is an expensive and difficult project and will require more lead time than usual to accomplish. The timing of this project will depend on the downtown growth rate and on coordination with the project to widen Alamitos Avenue.

Based on the strategies discussed above, each capital project is designated for a particular five-year time period, based on early, rapid growth in the City, and assuming that resources are available to meet project costs. Certain projects are marked for an early start because of the long lead times needed for design, funding, and environmental work. Tables 18 and 19 present improvement projects and their recommended priorities.

TABLE 18 CAPITAL PROJECTS PRIORITIES AND TIMING

IMPROVEMENT PROJECT	TIMING				
	1991-1995	1996-2000	2001-2005	2006-2010	Early Star On Design
EAST-WEST ACCESS IMPROVEMENT					
A. PCH					
o PCH traffic circle-grade sep.	x	x			yes
B. 7th Street					
1. Iron Triangle grade sep.		x	x		yes
2. 7th Widen.,San Gabriel/Cerritos Channel Bridges			x		yes
C. Shoreline/Ocean/Alamitos					
1. Alamitos widen., Ocean - 7th		x			yes
2. Alamitos wid., 7th to PCH		x			yes
3. Ocean/Alamitos grade sep.		x	x		yes
4. Shoreline/Ocean ramps			x		yes
5. Shoreline/6/7 new ramps			x		yes
6. Shoreline realign.			x		yes
AIRPORT ACTIVITY CENTER ACCESS IMPROVEMENT					
A. Lakewood widening			x		
B. Spring widening				x	
C. Spring/Lakewood grade sep.				x	
LOCALIZED STREET IMPROVEMENT					
A. ROADWAY IMPROVEMENT					
1. Port related street impro.	x	x	x	x	
2. Studebaker - new road	x				
3. Magnolia wid., Ocean to PCH				x	
4 Deforest, Shoreline to Anaheim			x		
5. Atlantic wid., 10th to PCH				x	
B. INTERSECTION IMPROVEMENT	x	x	x	x	

TABLE 19 PARKING PROHIBITIONS PRIORITIES AND TIMING

STREET SEGMENT	TIMING			
	1991-1995	1996-2000	2001-2005	2006-2010
EAST/WEST ACCESS IMPROVEMENT				
A. PCH				
Pacific Coast Hwy. all	x			
B. 7th Street				
6/7th St. west of Alamitos			x	
7th St., east of Alamitos			x	
C. Ocean/Alamitos				
Ocean west of Alamitos	x			
Alamitos, Ocean to 7th		x		
Alamitos, 7th to PCH		x		
D. Other Streets				
Willow, West City Limit to Magnolia	x			
Anaheim St., all			x	
LOCALIZED AREA				
A. Downtown				
Broadway, west of Alamitos	x			
3rd st., west of Alamitos	x			
Atlantic, Ocean to 10th				x
B. Airport Activity Center				
Cherry, Spring to Carson	x			
Clark, Willow to Carson		x		
Spring, Lakewood to Clark & Los Coyotes to Studebaker				x
C. Los Coyotes, all			x	

* Parking prohibitions shall be implemented in accordance with the policy statements listed in section 5.1.3 of the Transportation Element.

6.5 ACTION PROGRAMS

Programs which the City of Long Beach intends to utilize to implement its transportation goals and policies are described on the following pages. The programs are listed under each of the eight components of the policy plan.

A. Regional Mobility Improvement and Coordination

1. Additional High Occupancy Vehicle (HOV) lanes on the 405, 91, 710 and 605 Freeways

   The City should actively lobby with appropriate County and state commissions, committees and legislators for funding. The City also needs to work closely with the Los Angeles County Transportation Commission (LACTC) and the Southern California Association of Governments (SCAG) to ensure that these improvements are listed as eligible projects through the Regional Transportation Improvement Program.

   Responsible Agencies: Department of Public Works and Department of Planning and Building

2. A regional transit system

   The City should continue to work with LACTC, SCAG and surrounding cities in developing a regional transit system. This system should provide convenient, fast and safe transit services throughout the region with easy transfer system (i.e., a single bus pass). Neither County nor municipal boundaries should be viewed as barriers to this region-wide system.

   Responsible Agencies: Long Beach Transit, Department of Public Works, and Department of Planning and Building

3. Port Access - Alameda Consolidated Transportation Corridor and related on-dock rail facilities in the port

   The City should continue to provide support and needed planning assistance.

   Responsible Agencies: Long Beach Harbor Department, Department of Public Works, and Department of Planning and Building

B. Functional Classification of Streets

1. Traffic Operational Improvement Program

The City should systematically engage in traffic operational improvement program in accordance with the priority of need. This program is to ensure that operational characteristics for such streets are consistent with their street classifications.

Responsible Agency: Department of Public Works

2. Truck Route System

Clear and distinctive truck route signs should be installed along all truck routes as designated in the new system. Obsolete signs should be promptly removed from those streets which are deleted from the previous truck route system.

Additionally, a new truck route system map should be distributed to appropriate organizations and agencies to inform all trucking companies and drivers regarding the changes.

Responsible Agency: Department of Public Works

3. Better Traffic Direction Signs

The City should install clear, consistent and attractive signage that would direct vehicles via preferred routes to and from downtown, freeways, and activity centers throughout the City.

Responsible Agency: Department of Public Works

4. Street Tree Beautification Program

This program is to improve the visual quality along city streets. Priorities should be given to regional corridors, major arterials and entrances to the City. The City should designate location, type and size of trees, and planting procedures. Planting and maintenance funds should be adequately allocated.

Responsible Agencies: Department of Public Works and Department of Planning and Building

5. Integration of Land Use Planning with the Transportation System

The City should review, and if appropriate, modify the Land Use Element and Zoning District Maps as well as zoning regulations to ensure that future land development will be integrated with street network functions.

Responsible Agency: Department of Planning and Building

C. Roadway Improvements and Better Utilization of City Streets

1. Roadway Improvements

The City should prepare design plans for improvement projects based on the phasing priorities and criteria as stated in the Element. These projects based on the phasing schedules should be incorporated in the Capital Improvement Program (CIP) and secured by appropriate funding.

Responsible Agency: Department of Public Works

2. Congestion Management Plan

The City should participate with the LACTC in preparation of the Congestion Management Plan. The appropriate improvement projects identified in this plan should be incorporated into the Capital Improvement Program.

Responsible Agencies: Department of Public Works and Department of Planning and Building

3. A Comprehensive Transportation System Management Program

The City should proceed to install a traffic signal coordination system which will automatically alter signal timing and sequence in order to move traffic as smoothly as possible throughout the City.

Priorities should be given to regional corridors and major arterials.

The program should also include signing, striping, intersection channelization, lighting, parking control, sidewalks, wheelchair ramps, bus pullout bays, bike paths, bike lanes construction, special event traffic control, and related activities.

Responsible Agency: Department of Public Works

4. Minimizing Traffic Conflict Through Project Design Review Process

The City should review, and if necessary, modify zoning regulations to restrict vehicular access from a development site to the abutting major arterial street(s). If a development project must take access from a Regional Corridor or a Major Arterial, such an access should be limited to a right-turn in and right-turn out only unless adequate traffic control is provided.

Responsible Agencies: Department of Planning and Building and Department of Public Works

D. Transportation Demand Management

1. Transportation Management Association (TMA)

A Transportation Management Association should be organized and functional at each major activity center such as the Downtown and the Airport. This will be an organization of developers and businesses who are and who represent the larger employers in that area. Established as a private, non-profit, dues-paying membership group, the TMA will coordinate and manage the trip reduction activities of its members and of employers generally. Key activities will include car-pool, vanpool, transit, parking management, flex-time, and the appropriate incentives and disincentives needed to stimulate ridesharing. The TMA will also assist its members in meeting their Regulation XV requirements as established by the SCAQMD. The City should provide the technical assistance and monitor the activities and results of the TMA, and will participate in them as appropriate.

Responsible Agency: Department of Public Works

2. City-wide Trip Reduction Program

The goal is to reduce work trips in the City by 20% using transportation demand management and transit measures. This program will include activities having City-wide application that will reduce work trips in the City. The City will prepare and adopt ordinances which will encourage and/or require participation by businesses, employers, and commuters. This effort must be integrated with the adoption of the Air Quality Element of the General Plan. Activities will include transit and carpool information, flex-time information, and Regulation XV information.

Responsible Agencies: Department of Public Works and Department of Planning and Building

E. Transit

1. A Comprehensive Transit Improvement Program

This program is intended to achieve the goal to double the transit ridership by 2010. In order to achieve this goal, the transit service must become an attractive alternative transportation mode which will appeal to the non-transit dependent population. Therefore, improvement activities should incorporate those 21 policies as discussed in the Policy Plan.

The City should support an expansion of the bus fleet and bus garage in order to provide the increased service. The City should also undertake a feasibility study of park-and-ride facilities. Three potential sites are suggested in the Policy Plan.

Proposition "A" funds may be used for many of the transit-related costs. The City should administer those funds in order to implement the transit component of the Transportation Element.

Responsible Agencies: Long Beach Transit, Department of Public Works, and Department of Planning and Building

2. Private Shuttle Service

The City should support an effort to encourage and permit private shuttle operations to expand their services other than just to airports. Other private transit alternatives such as taxi, van and limousine services should also be encouraged.

Responsible Agencies: Department of Public Works and Department of Financial Management

F. Bicycle and Pedestrian Movement

1. Bike Route System

The City should continue to implement the routes in the recommended bikeway system. Clear signs to direct bike traffic should be installed. The City should also publish and distribute bike route maps to cyclists.

Bicycle parking facilities should be provided at all public recreational facilities (i.e., beaches, and parks) and public buildings (i.e., City Hall, and libraries). The City should also revise the zoning regulations to require large scale development to provide improvements (including on-site bike storage facilities) if the development site is adjacent to a bike route.

Responsible Agencies: Department of Public Works and Department of Planning and Building

2. Pedestrian Walkways

The City should systematically embark upon a crosswalk signal improvement program in accordance with the priority of need. This improvement program should ensure that adequate signals are provided at those crosswalks with heavy pedestrian traffic and that signalization timing is long enough to allow a safe crossing, especially for elderly people and young children. Care must be taken that signalization is employed in a manner which is consistent with the criteria and standards as adopted by CALTRANS, or which is otherwise consistent with sound traffic engineering practices.

All development projects (including resident commercial, institutional, and industrial) should provide a safe pedestrian walkway connection between the main entrance to a building to the abutting street. This provision should be included in the zoning regulations.

Responsible Agencies: Department of Public Works and Department of Planning and Building

G. Special Activity Centers - Downtown, Port, Airport

1. The City should develop and implement a comprehensive Downtown parking plan. Key features of the parking plan are to:

   - Provide adequate supply of short-term parking to support business and retail activities;

   - Discourage long-term parking within the downtown central business district, especially if those parking spaces are needed for short-term parking. This program may require a validation system for

short-term parking which includes the Long Beach Plaza garage;

- o Provide a parking management program for special events and convention activities;

- o Adjust parking ratio requirements by taking into consideration shared parking, transit use and mixed use development;

- o Promote Transportation Demand Management Programs by gradually reducing parking requirements, especially for office developments, over the next twenty years; and

- o Study appropriate locations for alternative peripheral long-term parking.

Parking management actions, including changes in parking supply and charges for long-term parking will be made with due consideration for the economic viability of downtown Long Beach and the specific needs and problems of businesses, developers, and commuters.

Responsible Agencies: Community Development Department and the Department of Planning and Building

2. Downtown Access and Circulation Improvements

The City should proceed to implement the improvement projects in such a manner that projects and programs become operational before demand substantially exceeds existing capacity. The immediate beneficiaries of downtown revitalization should be assigned responsibility for funding and for instituting any necessary transportation demand management programs.

Responsible Agencies: Department of Public Works and Community Development Department

3. Special Transit Service in Downtown

Special promotional activities and improved transit services are needed in Downtown in order to encourage transit use. The actions may include shuttle bus service circulating downtown, fare-free zone, and bus token for shoppers.

The actual routes and headways of the increased bus services, and the circulator routes, will be prepared

by Long Beach Transit. The Public Works Department will work closely with Long Beach Transit to ensure that the street system supports transit operations with design features such as bus pads, pullout bays, and large-radius corners.

Responsible Agencies: Long Beach Transit and Department of Public Works

4. Port Access

The City should continue to support and assist the Port to include the traffic improvement projects within the Port in the State Transportation Improvement Plan. In order to reduce the percentage of truck traffic on the Long Beach Freeway, especially during the peak hours, the City should work with the Port to pursue a 24-hour Port operation, and to take steps to attract port-oriented truck traffic to the Alameda Consolidated Transportation Corridor when it is completed.

Responsible Agencies: Port of Long Beach and Department of Public Works

5. Airport Long-range Development Plan

When the court decision pertaining to the airport operation is finalized, the City should adopt a long-range development plan. This plan should guide the airport to provide the needed services in meeting the demand, but such services should not result in additional adverse impacts onto the surrounding residential neighborhoods. When this plan is adopted, the Transportation Element should be amended accordingly.

The City should support and assist the airport to implement clean air control measures in accordance with the Air Quality Management Plan. The control measures include transportation demand management programs and improvements to ground access and aircraft operations.

Responsible Agencies: Department of Public Works and Department of Planning and Building

H. Neighborhood Improvements

1. Neighborhood Traffic Management and Parking Program

The City will undertake neighborhood traffic management programs, within neighborhoods which request them, with the purpose of limiting through traffic on local

streets while maintaining needed local access and circulation. Through traffic movements will be encouraged to use the arterial street system and discouraged from using local neighborhood streets. Several control measures may include closing of local streets where intersecting with a major thoroughfare, restricting of left turns, or reducing speed limit on local streets. The implementation details will be discussed with individual neighborhoods before being put into effect.

The program will be balanced throughout the City so that concerned neighborhoods will be studied and appropriate actions be taken on a City-wide basis. All actions, both on local streets and on arterial streets, will be in accordance with neighborhood goals and good traffic engineering practice.

Additionally, parking management studies should be prepared in response to existing and potential parking problems in certain neighborhoods. Such a program must be completed prior to removal of parking on the adjacent arterial streets. Mitigation measures may include preferential parking or diagonal parking, where feasible.

Based on the community input, Lakewood Village, Belmont Heights, Bluff Park, Drake Park Neighborhood, Lee/Bryant Schools, and Willmore City Historical District shall be given first priority for study under this program.

Responsible Agencies: Department of Planning and Building and Department of Public Works

2. Traffic Noise Impact Mitigation Program

This program is to examine appropriate actions to mitigate traffic noise impacts. Mitigation programs may include requiring special building and/or window insulation for a residential development that is located next to a major thoroughfare (including a freeway) or near the airport.

Responsible Agency: Department of Planning and Building

6.6 FUNDING SOURCES

Supporting the previously described capital projects and service programs actions is a funding package. This package must be both adequate and equitable. It will provide enough money to construct needed improvements and to operate needed services; it will equitably secure such funds from those who cause traffic impacts and who benefit from the improvements.

The funding of the capital improvement projects is based on the analysis prepared by the Advisory Committee for Funding Transportation Improvements. That committee reviewed many options and proposals for the allocation of costs among various affected groups. The funding proposal is founded on the principle that future improvements to the City's transportation system should be paid for by those who benefit from those improvements. This means that everyone must bear a fair share of the total cost. The allocation of funds between various sources is based on technical analyses of proportionate uses of key transportation improvements, balanced with the Transportation Funding Committee's assessment of each sector's ability to pay. The program's success depends upon a continuing public/private partnership composed of the City of Long Beach, business interests and new development.

Subsequent to adoption by the City Council of the Traffic Mitigation Program, it has become clear in public testimony on the draft Transportation Element that the program lacks adequate funding to implement capital improvements recommended by individual Neighborhood Traffic Management and Parking Programs. Therefore, it is recommended that the Director of Public Works determine the need for such funding as part of his first annual review and monitoring report, and propose to the City Council an appropriate amendment to the Transportation Impact Fee Program to include provision for such funding.

Also a part of the funding of the transportation improvement program is the Airport Assessment District, presently established by Council action with the cooperation and participation of developers and land owners in the area surrounding the Long Beach Airport. The revenues from the airport area property assessments are included in this section and will be used exclusively to construct road improvements in the airport area.

6.7 MONITORING AND EVALUATION

An important part of plan implementation is the annual monitoring of arterial traffic and intersection levels of service, and also of the new developments occurring in the City. Monitoring this data and evaluating the resultant levels of service will indicate

the success of the implementation program, the need to accelerate the construction of further improvements, and the need for improvement projects not originally considered as a part of the Transportation Element.

An annual monitoring program will be established in which traffic counts will be taken at key locations, accident rates reviewed, intersection and signal operations reviewed, levels of service reported, transit ridership noted, and other pertinent aspects of the performance of the City's transportation system discussed and analyzed. Also included will be the past year's activities in TDM, TSM, and TMA performance, project implementation, land use development activities, and expenditures of impact fees. The responsible agencies for this monitoring report should be Department of Public Works and Department of Planning and Building. The annual report will be the basis for the programming of capital improvement projects in the Transportation Element, and for scheduling programmatic activities.

The Planning Commission should conduct an annual review hearing which will provide an opportunity to:

- Determine whether the assumptions made relative to future travel patterns, population growth, and land use changes are in accordance with existing forecasts;
- Seek ongoing citizen input with regard to transportation issues;
- Monitor implementation of the adopted Transportation Element;
- Recommend revisions to the Transportation Element; and
- Initiate new action programs or new policies.

It is also recommended that a major review of the Element be required every 3-5 years in order to revise trip-end estimates based upon the most recent socioeconomic and land use data, and to update the entire plan, if necessary. In order to maintain an effective planning process, the general public must play an active role. Therefore, in this second phase review process, the Planning Commission may consider forming an ad-hoc transportation evaluation committee to provide more thorough citizen input. Every ten years, a complete plan re-evaluation would be necessary to redevelop the land use, population, and trip-end forecasts, as well as to re-evaluate all aspects of the Plan. These reviews should begin after detailed data from decennial censuses are available.

APPENDIX A

TRANSPORTATION TASK FORCE FINAL REPORT

Transportation Task Force Final Report
is printed as a separate volume.

APPENDIX B

1989 AIR QUALITY MANAGEMENT PLAN CONTROL MEASURES

SUMMARY
AIR QUALITY MANAGEMENT PLAN
Control Measures To Be Implemented By Local Governments

Control Measure Number	Title	Activities	Date*	AQMP Appendix No., Page No
1.a	Alternative Work Weeks and Flextime	Administrative Action	1990	IV-G, pp. 47-52
1.b	Telecommunications	Ordinance Adoption	1991	IV-G, pp. 53-62
2.a	Employer Rideshare and Transit Incentives	Ordinance Adoption	1990	IV-G, pp. 65-70
2.b	Parking Management	AQ Element/ Ordinance Adoption	1990	IV-G, PP.71-76
2.c	Vanpool Purchase Incentives	Support Legislation	1990	IV-G, pp. 77-82
2.d	Merchant Transportation Incentives	Ordinance Adoption	1991	IV-G, pp. 83-88
2.e	Auto Use Restrictions	AQ Element Adoption	1990	IV-G, pp. 89-94
2.g	Transit Improvements	Seek Transit Funding	1989	IV-G, pp. 99-102
3.a	Truck Dispatching, Rescheduling and Rerouting	AQ Element/ Ordinance Adoption	1990	IV-G, pp. 105-112
4	Traffic Flow Improvements	Administrtive Action	1989	IV-G, pp. 119-123
5	Nonrecurrent Congestion	Administrative Action	1989	IV-G, pp. 125-133
6	Aircraft and Ground Service Vehicles	Rule Adoption	1990	IV-G, pp. 135-140
7	Centralized Ground Power Systems	Rule Adoption	1990	IV-G, pp. 141-146
8	Airport Ground Access	Rule Adoption	1990	IV-G, pp. 147-154
9	Replacement of High Emitting Aircraft	Enact MOU	1990	IV-G, pp. 155-16

*Calendar year from January 1, to December 31.

SUMMARY
AIR QUALITY MANAGEMENT PLAN

Control Measure Number	Title	Activities	Date*	AQMP Appendix No. Page No.
12.a	Paved Roads	Administrative Action	1990	IV-G, pp. 173-178
12.b	Unpaved Roads and Parking Lots	Ordinance Amendment	1994	IV-G, pp. 179-184
15	Electric Vehicles	Support Legislation	1989	IV-G, pp.197-201
17	Growth Management	Gen. Plan Amdt./ Ordinance Adoption	1990	IV-G, pp. 209-216
18.a	Local Government Energy Conservation Program	Adoption Ordinance Adoption	1990	IV-G, pp. 217-224
18.b	Waste Recycling	Ordinance Adoption	1990	IV-G, pp. 225-232
18.c	Energy Pricing, Tax, and Subsidy Incentives	Ordinance Adoption	1990	IV-G, pp. 233-240
D-4	Emissions Reductions from Swimming Pool Water Heating	Ordinance Adoption	1990	IV-G, pp. D12-D14
D-5	Control Emissions from Residential and Commercial Water Heating	Ordinance Adoption	1990	IV-G, pp. D15-D18
F-4	Control of Fugitive Emissions from Construction of Roads and Buildings	Ordinance Adoption	1991	IV-A, pp. F15-F17
F-9	Low Emission Materials for Building Construction	Ordinance Adoption	1991	IV-A, pp. F25-F27
D-2	Out-of-Basin Transportation Biodegradable Solid Waste	Ordinance Adoption	1992	IV-A, pp. D6-D8
E-3	Control of Fugitive Dust from Agriculture	Ordinance Adoption	1993	IV-A, pp. E14-E-16
--	Adoption of AQMP by Ventura County	Plan Revision	1990	

*Calendar year from January 1, to December 31.

APPENDIX C

TRAFFIC MODEL RUN RESULTS

Barton-Aschman Associates, Inc.

75 North Fair Oaks Avenue
Pasadena, California 91109-1090
USA

Phone: (818) 449-3917
Telex: 675336
Fax: (818) 440-8940

CITIZENS' TRANSPORTATION TASK FORCE
Model Run Results

Introduction

The Citizens' Task Force on Transportation has requested that the Long Beach computer model be run a number of times in order to test alternatives to the recommended transportation plan. The model runs requested fell basically into three categories:

A. Modifications to the parking restrictions recommended in the transportation plan.

B. Changes to some of the capacity assumptions discussed in the plan.

C. Testing of variations of the transportation demand management and transit assumptions in the recommended plan.

The purpose of this memo is to describe the general results of the individual model runs. Graphical representations of these model runs have been supplied to each subcommittee of the Citizens' Transportation Task Force. Additional copies of the results are available for review at the City of Long Beach Bureau of Engineering.

The model result description will use the same nomenclature that has been utilized throughout the Long Beach planning process. The graphical representation of model results show each transportation corridor in terms of its volume/capacity ratio. The graphical representations further categorize the volume/capacity ratios in terms of level of service for the corridor. Color graphics show Levels of Service A-D represented as green lines on the computer output. Intersections that are approaching their full capacity during the afternoon peak hour are coded as yellow lines representing Level of Service E conditions. Corridors that are expected to exceed their capacity and operate at Level of Service F are shown as red lines on the computer output.

The City of Long Beach has adopted Level of Service D as their "acceptable" criterion for peak hour arterial street performance. Therefore, in the descriptions below, those corridors that operate as "yellow" or "red" corridors are ones that exceed the City's desirable criterion for Level of Service performance.

Model Run A-1—Parking Remains on Broadway and Third, East of Downtown, 2010 Trip Table, Recommended Transportation Plan Improvements.

Description: This model run keeps all of the improvements recommended in the transportation plan, with the exception of parking prohibitions east of downtown on Broadway and Third. Both of these streets are kept in their existing configuration.

Results: The model run showed that both Broadway and Third would operate in the yellow condition in the year 2010. Volume/capacity ratios between 94% and 109% of capacity are found in both the Broadway and Third Street corridors.

Likewise, eastbound traffic congestion in the Seventh Street corridor has been extended westerly to Cherry. With the Broadway and Third Street parking prohibitions in place (i.e., the recommended plan), eastbound Seventh Street operated in the green condition all the way to the iron triangle.

Ocean Boulevard experiences a slight increase in traffic between downtown and Redondo Boulevard under this alternative. However, the street still operates in the yellow condition.

In summary, much of the traffic stayed on the Broadway and Third Street corridors and traffic congestion simply increased in these two corridors. The traffic that did leave these streets shifted northerly to eastbound Seventh Street and congestion increased in the Seventh Street corridor. Ocean was not significantly impacted by the removal of parking restrictions on Broadway and Third.

Model Run A-2—Model Run A-1 Plus Parking to Remain Also Along Fourth, Anaheim, and Atherton.

Description: This alternative leaves parking not only on Broadway and Third, but also leaves parking all day long along Fourth, Anaheim, and Atherton. In essence, all five of these east-west corridors will remain in their existing configurations with no capacity added through the removal of peak-hour parking.

Results: This alternative increases congestion along eastbound Seventh Street, eastbound Anaheim, and Atherton east of the traffic circle. Seventh Street turns red (exceeds capacity) in the eastbound direction throughout the entire length of Seventh Street from downtown to Interstate 605. V/C ratios above 1.2 indicate potentially serious congestion.

Anaheim Street east of Alamitos changes from eastbound green under Run A-1 to yellow/red under Run A-2.

Likewise, without the parking prohibitions, Atherton operates in the "yellow" condition east of the traffic circle for eastbound traffic.

Eastbound traffic also affects virtually all of the east-west streets leaving downtown between Alamitos and Redondo. Ocean Boulevard turns red under this alternative, while First, Second, Third, Broadway, and Fourth all turn combinations of yellow and red.

In summary, there is not enough eastbound capacity leaving downtown at night to allow parking to remain on all eastbound streets except the Seventh Street corridor as was assumed in this model run.

Model Run B-1—Year 2000 Trip Table Run on the Existing Roadway System.

Description: This model run builds approximately one-half of the total long-range traffic growth. The traffic generated by this interim land use growth, however, is accommodated on the existing roadway system. The purpose of this run was to see how long the existing roadway system would service us in the future before serious breakdowns occur.

Results: The results of Model Run B-1 show that the major impacts would occur along eastbound Seventh Street, eastbound Ocean and, to some extent, eastbound Pacific Coast Highway. All of these conditions occur east of downtown. All three of these corridors would operate in the yellow condition in the year 2000. Broadway, Third, and Fourth Streets east of downtown would all still operate in the green condition with the exception of some short eastbound sections of Fourth Street.

The other major problem occurs along Ocean Boulevard west of downtown where the heavy increase in employment trips turns Ocean Boulevard yellow and red in both directions west of the downtown.

This model run indicates that we could go for a long time without having to eliminate parking along streets east of downtown with the exception of Seventh Street. By the year 2000, parking restrictions along Seventh Street and along Pacific Coast Highway will be necessary. This model run also indicates the importance of implementing improvements to the traffic circle and the iron triangle in that these locations are probably operating in the "yellow" condition today, and traffic is likely to increase through both of these points.

Model Run B-2–Year 2000 Land Use on Future Network.

Description: This model run tested what would happen to the street system if we could somehow bond for all of the transportation improvements now and actually implement them before full traffic from new development and background traffic was developed.

Results: This model run indicated that almost every arterial street within Long Beach could operate in the "green" condition in the year 2000, if the entire $232,000,000 transportation program were implemented. Only one short section of eastbound Ocean Boulevard east of downtown operates in the yellow condition, as does eastbound Seventh Street east of the iron triangle. West of downtown, Ocean Boulevard would operate in the yellow condition.

This model run indicates that Long Beach is in the enviable position of being able to get ahead of its traffic congestion. However, funding limitations may make this a very difficult condition to implement.

Model Run B-3—2010 Land Use With Recommended Roadway Improvements Except No Freeway Improvements On Any Area Freeways.

Description: This model run tested the entire $232,000,000 worth of improvements on Long Beach City streets, but we assumed no additional lanes would be added to any freeway. The purpose of this model run was to determine how much Long Beach would be impacted if Caltrans cannot be convinced to widen the freeways by one lane in each direction over the next 20 years.

Results: This model run shows significant east-west congestion in Long Beach on virtually all of the major corridors. Seventh Street, Broadway, and Third all operate in the yellow condition eastbound out of downtown. Tenth Street and Ocean Boulevard eastbound operate in the yellow/red condition. Pacific Coast Highway eastbound increased in traffic levels to the point where it operates yellow/red throughout most of the length of Long Beach. The northern part of Long Beach and the Long Beach airport area also experience significant congestion as traffic avoids the freeway congestion on I-405 and on State Route 91.

In summary, this model run proves that the Long Beach city street system is indeed an effective short-cut to avoid freeway congestion. This model run points out how important the freeway improvements are to the operation of Long Beach's city streets.

Model Run B-4—Same As Model Run B-3, Except Trucks Would Be Prohibited From I-710.

Description: This model run assumed the same cross sections for the ultimate roadway improvements and assumed that freeways would all stay the same except trucks would be prohibited from the Long Beach Freeway. The intent of this model run was to see if we could avoid widening the Long Beach Freeway if we could only get trucks to move off the freeway.

Results: The model run indicates that the Long Beach Freeway south of I-405 would operate in the "yellow" condition under this set of assumptions. Trucks are moved westerly

to the Alamitos corridor which operates in the yellow/red condition near State Route 91. In other sections of the Alamitos corridor, the corridor operates in the green condition. Therefore, trucks have effectively been shifted to the Alamitos corridor.

The capacity that was "freed up" along the Long Beach Freeway has effectively been filled with north-south traffic off the arterial streets leaving downtown. Therefore, the effect of the shift of trucks away from the Long Beach Freeway will not necessarily be felt on the Long Beach Freeway itself. It will operate at about the same level of service. However, the north-south arterial streets in Long Beach will see some relief because northbound traffic will shift to the freeway.

In summary, if we could find a way to prohibit trucks from the Long Beach freeway, downtown Long Beach in the year 2010 could be served with the Long Beach Freeway in its existing six-lane cross-section. However, in the consultant's opinion, the total prohibition of trucks from the Long Beach Freeway is unlikely.

Model Run B-5--2010 Land Use With Full Improvements With Increased Capacity In the Atherton Corridor and In Atherton/I-605 Interchange.

Description: This alternative connects Pacific Coast Highway with Atherton over the traffic circle and joins Atherton with I-605 to/from the north. In effect, we are trying to accomplish a high-capacity, east-west arterial north of the Seventh Street corridor. The intent would be to attract trips destined to/from the north on 605 to this corridor and capture them before they reach the Seventh Street corridor. In this manner, it was hoped that eastbound traffic out of downtown would leave Ocean, Broadway, Third, and Fourth, and instead utilize the newly freed up capacity along eastbound Seventh Street.

Results: This model run was very successful at attracting trips to/from I-605 along the PCH/Atherton corridor. Approximately 2,000 cars per hour in each direction were taken on and off the I-605 freeway and put into the Atherton/PCH corridor. A number of trips to/from Cal State Long Beach used the northern entrances to campus rather than coming down and using Seventh Street. Likewise, some downtown traffic chose to use the Alamitos corridor to the PCH/Atherton corridor instead of using Seventh Street.

The biggest change in travel patterns generated by this alternative appears to involve employment trips located west of downtown. Travel shifts showed that trips from the naval base and the shipyards and the Port of Los Angeles all shifted to a northerly direction and used PCH/Atherton to travel across Long Beach. These trips came out of the Ocean Boulevard corridor such that downtown actually saw a decrease in traffic along Ocean Boulevard as a result of the PCH/Atherton connection.

Traffic reductions were also seen along Seventh Street and, for the first time, slight reductions were also seen in eastbound traffic along Ocean Boulevard east of downtown.

In summary, this alternative added approximately 500 eastbound trips per hour to the PCH corridor with this number increasing to approximately 2,000 eastbound vehicles per hour at the I-605 freeway connection. These 500 vehicles per hour basically are a result of traffic shifting northerly off of Ocean Boulevard, Broadway, Third, Fourth, and Seventh Street east of downtown.

This alternative appears to be a very effective means of getting greater utilization out of the Alamitos corridor, using PCH more effectively as a regional route by attracting through trips away from downtown Long Beach and alleviating eastbound commute trips through the neighborhoods east of downtown.

The feasibility and cost of the Atherton/I-605 ramps are now being studied.

Model Run B-6--2010 Land Use With Recommended Roadway System Plus a Set of Committee Recommendations.

Description: This set of improvements added a number of parking restrictions and other modifications to the recommended roadway system. Specifically, the Committee asked to see the effects of eliminating parking at the following locations:

Willow/west of Magnolia
Carson/Bellflower to Lakewood
South/Cherry to Atlantic
Artesia/entire length

Studebaker/Carson to PCH
Woodruff/entire length
Los Coyotes/Bellflower to Studebaker
Cherry/Willow to PCH (3 lanes in each direction)
Orange/Freeway to Alamitos (3 lanes in each direction)
Santa Fe/entire length

The Committee also asked that the Lakewood/Spring grade separation be removed and that no freeway widenings be assumed. In addition, the Committee asked that two I-405 ramps be eliminated in order to reduce the ease with which through traffic could cut through Long Beach.

Finally, the Committee asked that a light rail line along Pacific Coast Highway be tested, signals be optimized in the entire network, and a 5% increment in transportation demand management be evaluated.

Results: This model run was inadvertently accomplished with the above improvements being substituted for the recommended roadway improvements instead of being added to the recommended roadway improvements. Therefore, the model run is now being done again.

However, on the basis of the improvements tested above, it was suggested to the Committee that the model run be accomplished again with freeway widenings recommended in the plan included in the model run. The Committee agreed to this when they looked at the results of Run B-3.

Also, the model cannot test the effects of a light rail line along PCH because we do not have a mode split model built into this modeling package. The model already assumes optimized signals, and therefore no changes were necessary in order to test this Committee request. The consultant felt that a 5% increase in transportation demand management would not be enough to show up on the model run results. The effectiveness of TDM will be tested in runs C-1 and C-2.

Model Run C-1—2010 Land Use With Full Improvements With a 10% Reduction in Work Trips For Transportation Demand Management.

Description: The recommended transportation plan includes a 20% reduction in Long Beach-based employment work trips. In other words, if a job is located in Long Beach, the recommended plan assumes that the City of Long Beach will be able to institute a transportation demand management program that reduces peak hour commute trips by 20% over the level of trips that are generated today. This model run tests what will happen if the transportation demand management effectiveness only reduces work trips by 10% over today's levels.

This model run is essentially a sensitivity test to see if there are dramatically more improvements that would be needed if the 20% TDM effectiveness assumption turns out to be only 10%.

Results: The model run indicates that the roadway system in Long Beach will look essentially the same under a 10% TDM scenario as the recommended 20% TDM scenario. The biggest changes occur along Ocean, Broadway, Third, Fourth, and Tenth Streets leaving downtown. Eastbound Ocean will operate in the yellow/red condition while the other corridors will operate with substantial sections of yellow street sections.

The other area that is affected by the reduction in transportation demand management effectiveness is the employment area in the vicinity of Long Beach airport. North-south streets east of the airport will operate in the yellow and red conditions under this TDM level.

Although there is not a significant difference between the 10% and 20% TDM assumptions, there is enough improvement in the street operations east of downtown and in the vicinity of the Long Beach airport that the consultant felt it was worth the extra effort it took to reach a 20% TDM effectiveness level. Substantial new infrastructure investments would not be necessary if only 10% TDM effectiveness was achieved. However, there will be some degradation in the street system especially east of downtown and in the vicinity of the airport. More street sections will fail to meet the City of Long

Beach's capacity performance criterion under this alternative than under the recommended 20% TDM level.

Model Run C-2–2010 Land Use on the Existing Roadway System with a 40% Transportation Demand Management Assumption.

Description: This model run assumes full build-out of Long Beach land uses is accomplished as well as full growth in background traffic levels. However, the existing roadway system will remain in place for the next 20 years, and the only change that will be made is that we will be 40% effective in reducing peak-hour Long Beach-based commute trips.

The purpose of this run is to find out if we could eliminate any or all of the $232,000,000 worth of improvements if we could be more effective at controlling our peak-hour work trips.

Results: The model run shows that this alternative simply does not work in terms of transportation system performance. All of the east-west facilities east of downtown, Pacific Coast Highway, and virtually all of the east-west facilities north of I-405 operate in the yellow and red conditions. Broadway, Third, and Fourth operate at approximately 50% over their capacity. Likewise, Seventh Street, the Los Coyotes diagonal, Lakewood, Spring Street and Ocean Boulevard west of downtown operate more than 30% beyond their existing capacity.

In summary, far too many streets violate the City of Long Beach's performance standards to have this alternative receive any further consideration. In addition, it is the consultant's opinion that a 40% transportation demand management reduction is unrealistic.

Model Run C-3–2010 Land Use with Improvements with a Seventh Street Transit Corridor.

Description: This model run keeps all of the recommended roadway improvements the same except that in the Seventh Street transit corridor, two lanes of the six-lane street

would be used exclusively for transit vehicles with the remaining four lanes serving mixed flow traffic.

In addition to simply changing the composition of Seventh Street, travel flows were analyzed to determine how many trips traveled between downtown Long Beach and the Orange County zones east of Cal State Long Beach. Once this number of trips was identified, a total of 10% of these trips were "captured" in a remote parking lot adjacent to Cal State Long Beach, and these captured trips were shifted to the transit mode. Thus, transit flow in the Seventh Street corridor increased and automobile travel decreased.

Results: The results of the model run showed that eastbound Seventh Street operated in the yellow condition from downtown to Redondo and in the red condition from Redondo to I-405/I-605. There was not enough shift out of the automobile and into transit to satisfactorily accommodate the automobile traffic in the remaining four lanes of automobile flow. In addition, this increased congestion in the Seventh Street corridor forced traffic to Broadway, Third, Fourth, First, and Ocean Boulevard. Thus, eastbound travel out of downtown was shifted away from the Seventh Street corridor and onto all of the eastbound streets that penetrate the neighborhoods east of downtown.

There does not seem to be enough justification to dedicate a full lane of travel in each direction in the Seventh Street corridor to buses only. Even with a bus every three to five minutes, the Seventh Street corridor does not meet the criteria for exclusive bus lanes. Even with a large parking lot located at the eastern end of the corridor, not enough trips could be attracted to get to the 30 or 40 buses per hour that are normally considered to be an appropriate threshold for a fully dedicated bus lane.

Upon reviewing the results of this model run, the Committee asked that consideration be given for a lane of traffic in each direction to be reserved for both buses and high-occupancy vehicles (i.e., carpools and vanpools). In the consultant's opinion, this type of improvement would be far more realistic. There would be less congestion in the mixed traffic flow lanes if carpools and vanpools were allowed to use the transit lane. However, this would require that local bus service on the Seventh Street corridor would have to be provided with a bus pullout at every stop so that the express bus service and the carpools/vanpools could bypass the local bus stops. As an alternative, local bus service

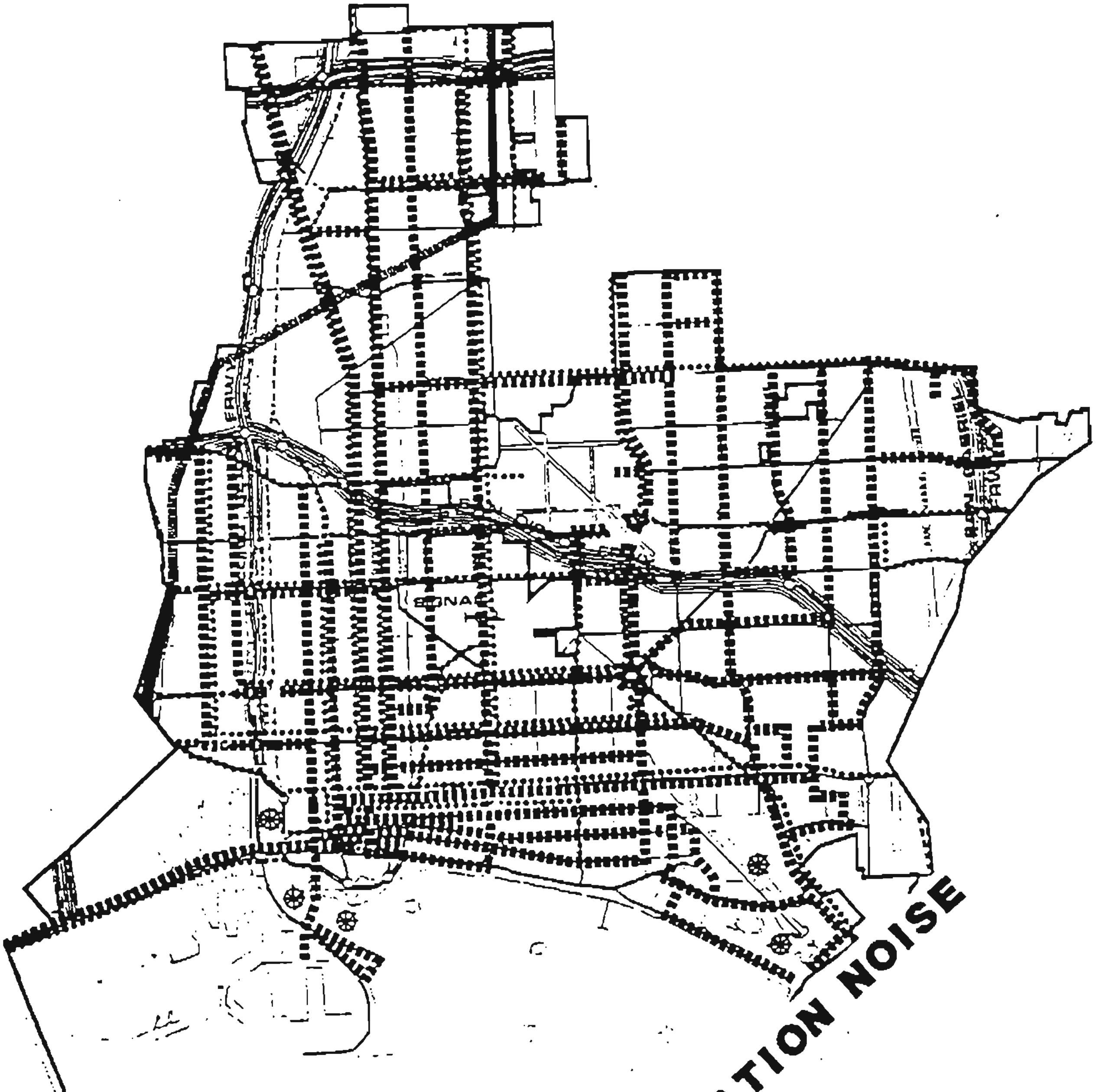
could be shifted to Sixth Street and Tenth Street, although this obviously increases walking distance for local transit service.

In summary, the proposed six-lane cross section recommended in the transportation plan operates basically in the green condition from downtown to the iron triangle. With this level of traffic performance, it may be doubtful that reserved lanes for buses and carpools would be utilized. Buses and carpools in mixed traffic according to the recommended plan would have a very good level of service along a completely mixed Seventh Street corridor. Therefore, we may not accomplish much of a travel time improvement for transit riders or for carpool/vanpool riders with reserved lanes in the Seventh Street corridor. In addition, in order to effectively accommodate the reserve lanes, either local bus service will have to be moved, or bus bays will have to be provided in the corridor. Either of these "improvements" may cause more problems than the exclusive bus lanes attempt to solve.

PG/mgh

APPENDIX D

TRAFFIC NOISE

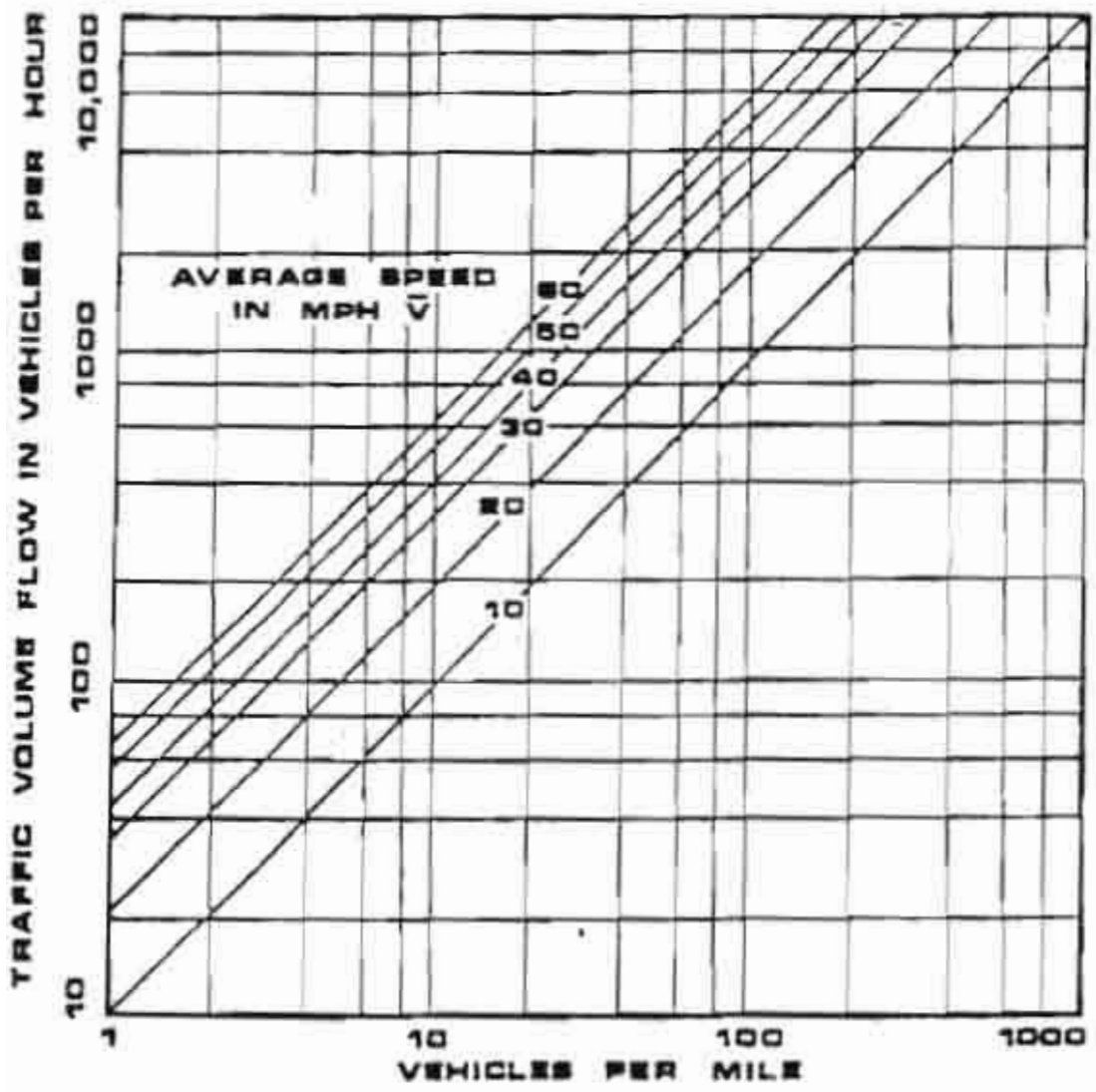


TRANSPORTATION NOISE

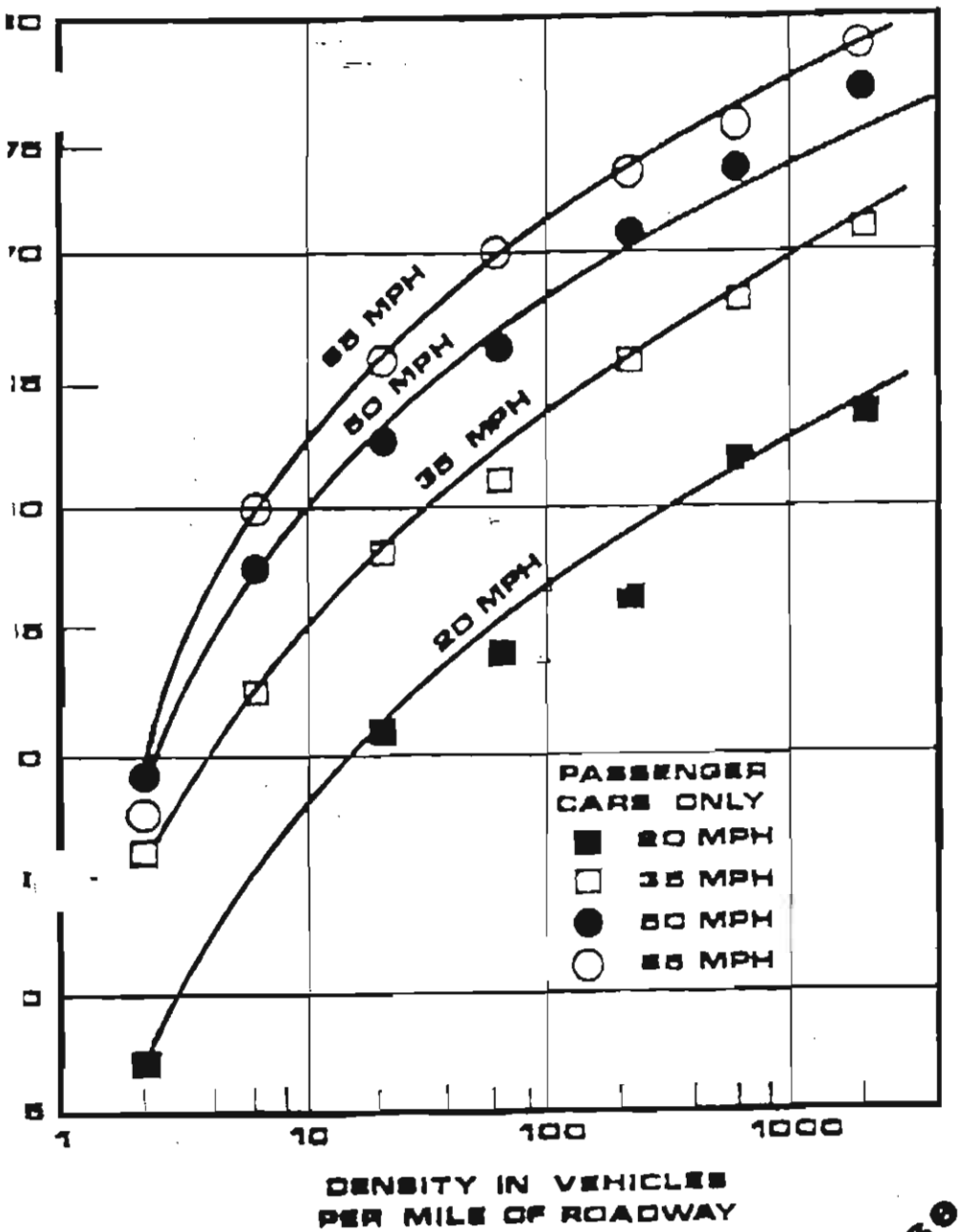
Noise Levels

ILLUSTRATIVE NOISE LEVELS AND CONSEQUENCES-

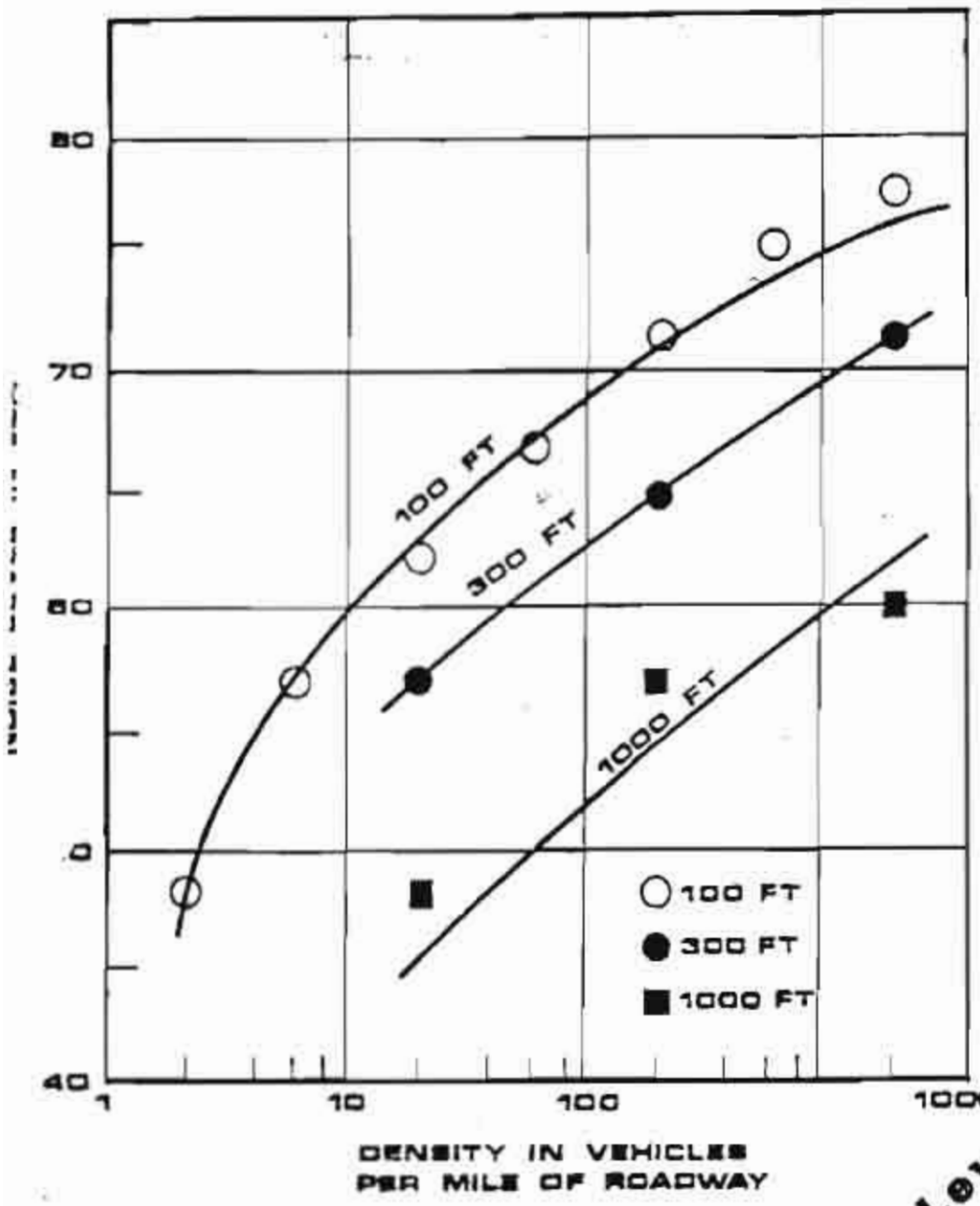
APPROX. RATIO OF LOUDNESS TO THAT AT REF. LEVEL	dBA	EXAMPLES	PROBABLE PUBLIC REACTION TO PEAK LEVEL NEAR RESIDENCE
X4	90 -	Average peak noise diesel trucks at about 35' from pavement edge	Local community activity with influential or legal action
			Petition of protest
X2	80 -		
			Letters of protest
		- Downtown traffic in large cities from sidewalk	Complaints likely
			Complaints possible
Reference	70 -	Speech Interference Level	
X1/2	60 -	Quiet residential traffic at 15' from pavement edge	Acceptance
	-		
X1/4	50 -	Average business office	
		- Average residence neighborhood	
1/8	40 -		



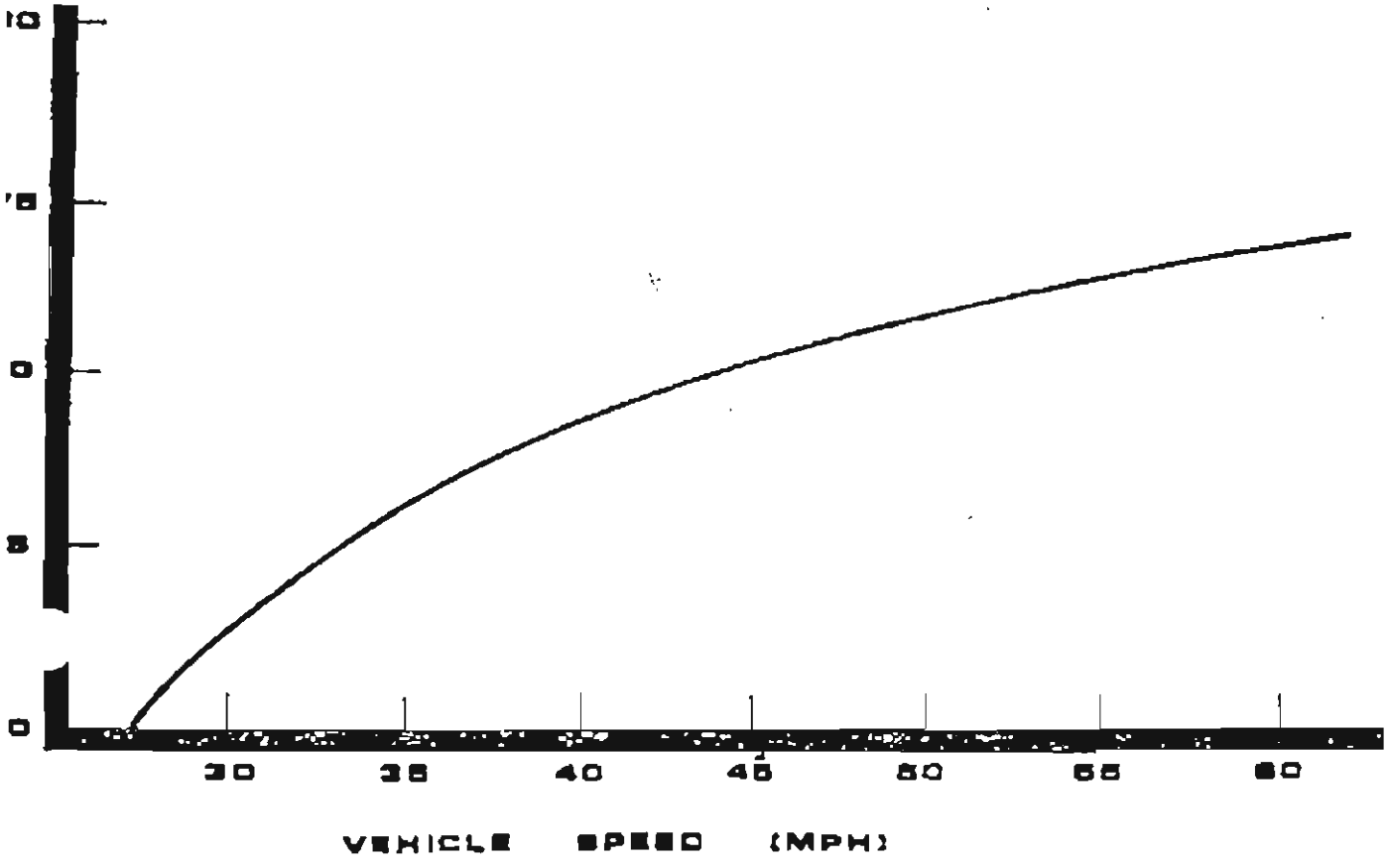
Noise Levels Vehicle Density, Speed and Traffic Flow



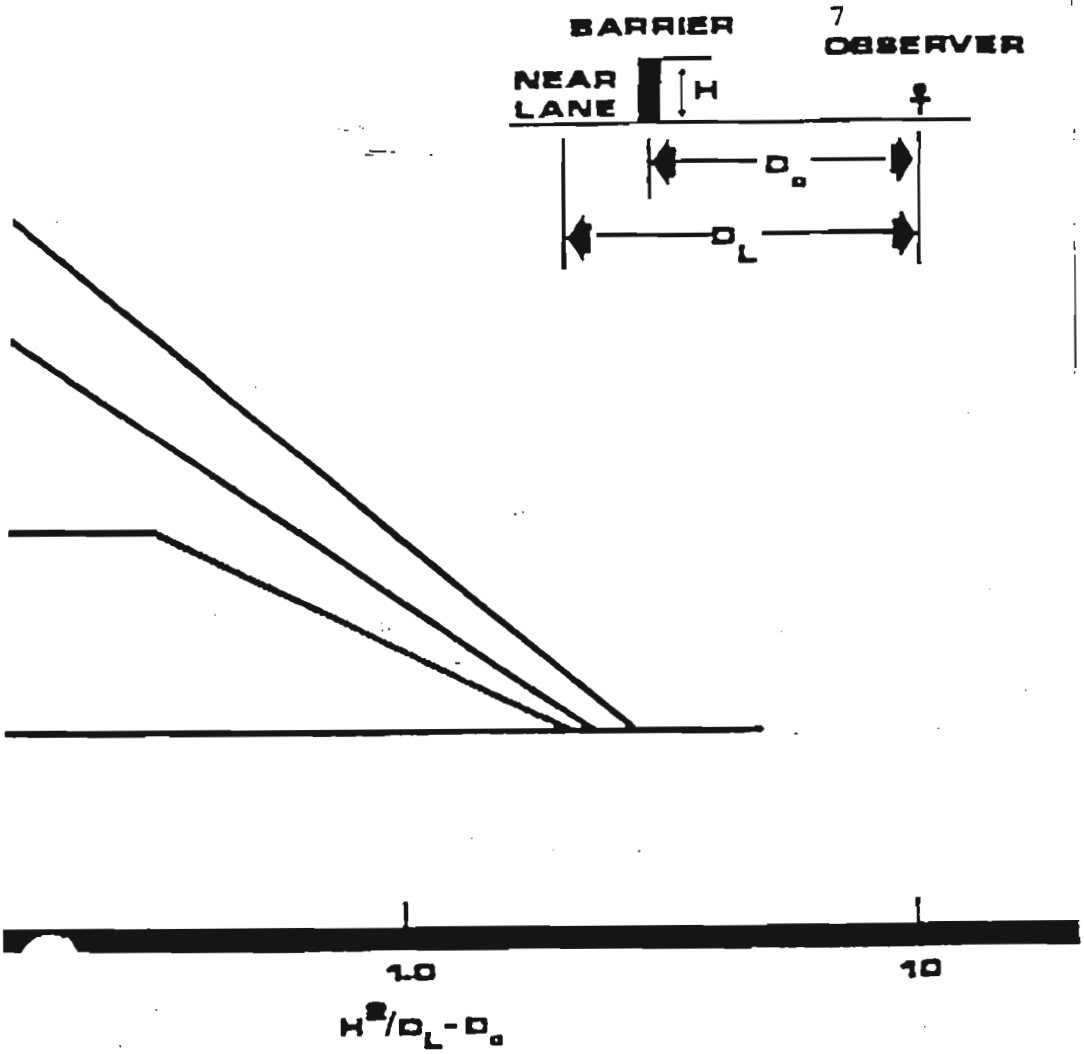
Noise Levels
Traffic Density



Noise Levels Distance from Travel Lane



Noise Levels
Speed



de Barrier on Noise from Roadways. Appropriate Values
ht (H), Distance from Observer to Near Lane (D_2) and
server to Barrier (D_o) are Used in the Two Expressions,
D_o. The H^2/D_o Value is Interpolated Among the Four Curves
to the H^2/D_L-D_o Value. The Corresponding Value on the
he Noise Level Adjustment in dBA.

ntinuous Barrier
Struct